

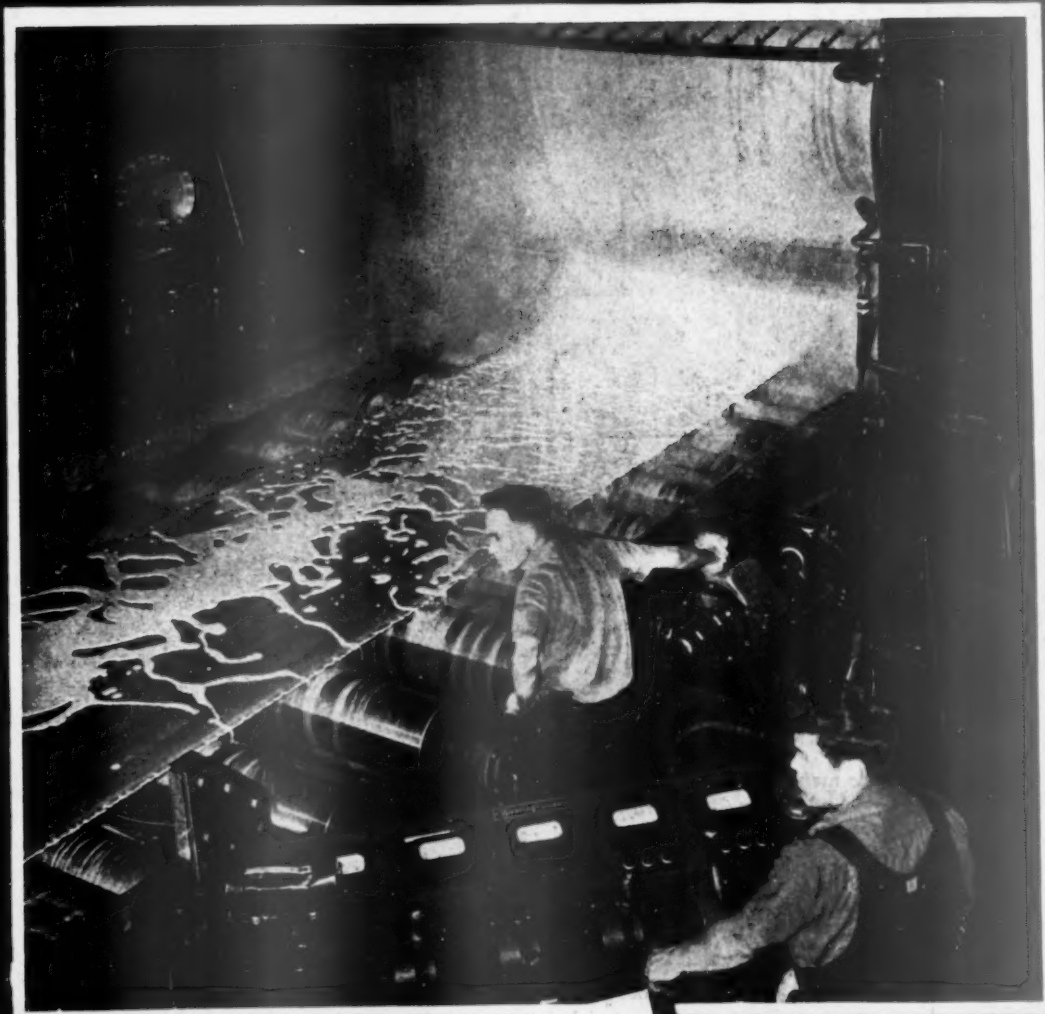
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BUSINESS WEEK

START
OF WAR
1939



In This Issue:

The Light Metals
—A Report to Executives

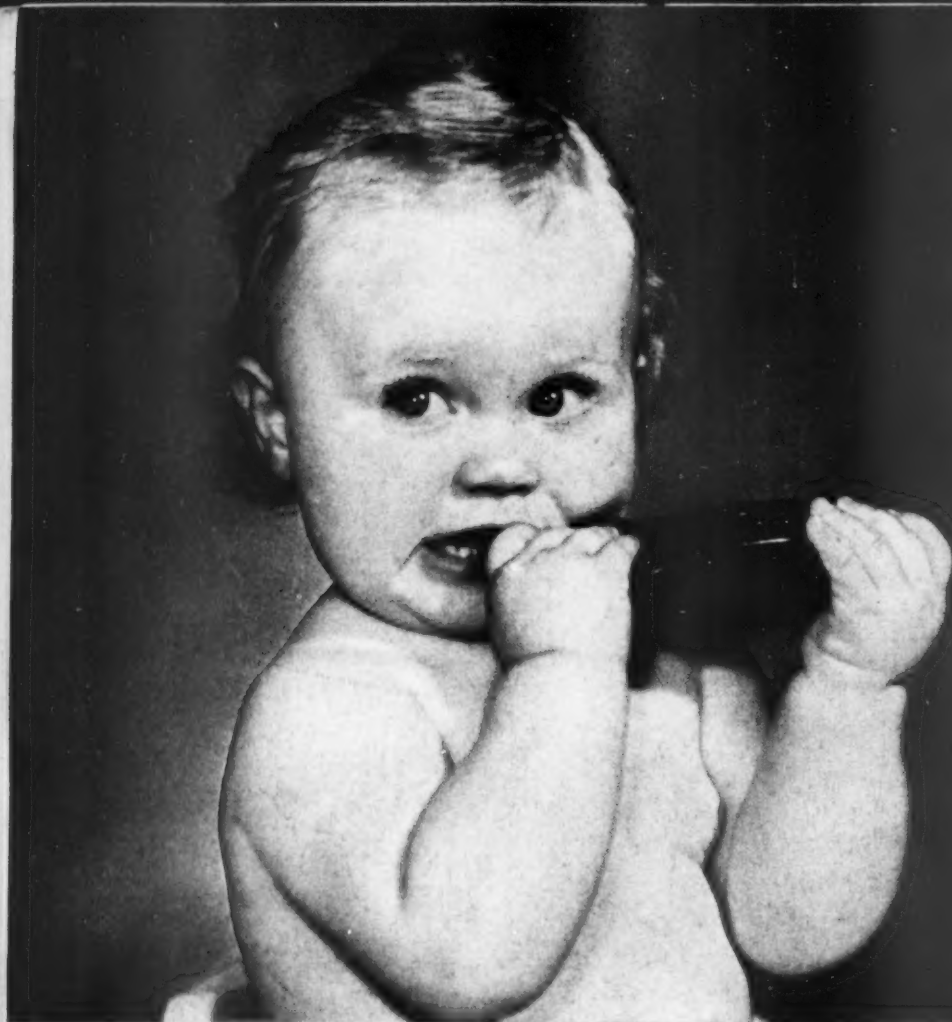
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WEEK
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What's he got that you didn't have?

AMONG MANY THINGS already certain are endless human comforts made possible by plastics... shoes without leather... hats without felt... new kinds of suit and dress materials, as well as an almost endless number of home conveniences, that "neither moth nor rust doth corrupt."

You, perhaps, think of plastics as substances which can be molded into articles such as the toy in the child's hand... or into a telephone hand set... or colorful kitchen ware. But imagine beyond that. Imagine man-made materials which can be made as strong, pound for pound, as metal... or which can be spun as fine as the most delicate fibers. Imagine substances which can be made as clear as crystal... or as colorful as the rainbow... as elastic and flexible as rubber... or as rigid as stone.

Imagine materials which can be made acid-resistant or weather-resistant... shrink-proof, warp-proof, insect- or mold-proof. Imagine materials which are new substances in themselves, and which also transform familiar substances like wood, cloth, paper, leather, and even glass into new and more useful materials. Then you will

begin to see what plastics can mean in the way of better houses, better cars, better clothes, better food containers... for your child... and for you.

The research which has characterized both BAKELITE CORPORATION and CARBIDE AND CARBON CHEMICALS CORPORATION, Units of UCC, has enabled them to show the way in the development and application of plastics and resins.

Resins and plastics, developed during the years before the war are proving of extreme importance in essential activities of today. BAKELITE and VINYLITE resins and plastics help to insure the un-failing performance of battleships, aircraft, and tanks. They also extend the service life of military clothing and equipment, and hospital and surgical supplies. They are serving on all fronts.

These resins and plastics, and the new uses for them which are being developed today, will be important in the peace to come. They are among the things which will make a better world for you.

BUY UNITED STATES WAR BONDS AND STAMPS

UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street **UCC** New York, N. Y.

Principal Products and Units in the United States

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Haynes Stellite Company
United States Vanadium Corporation

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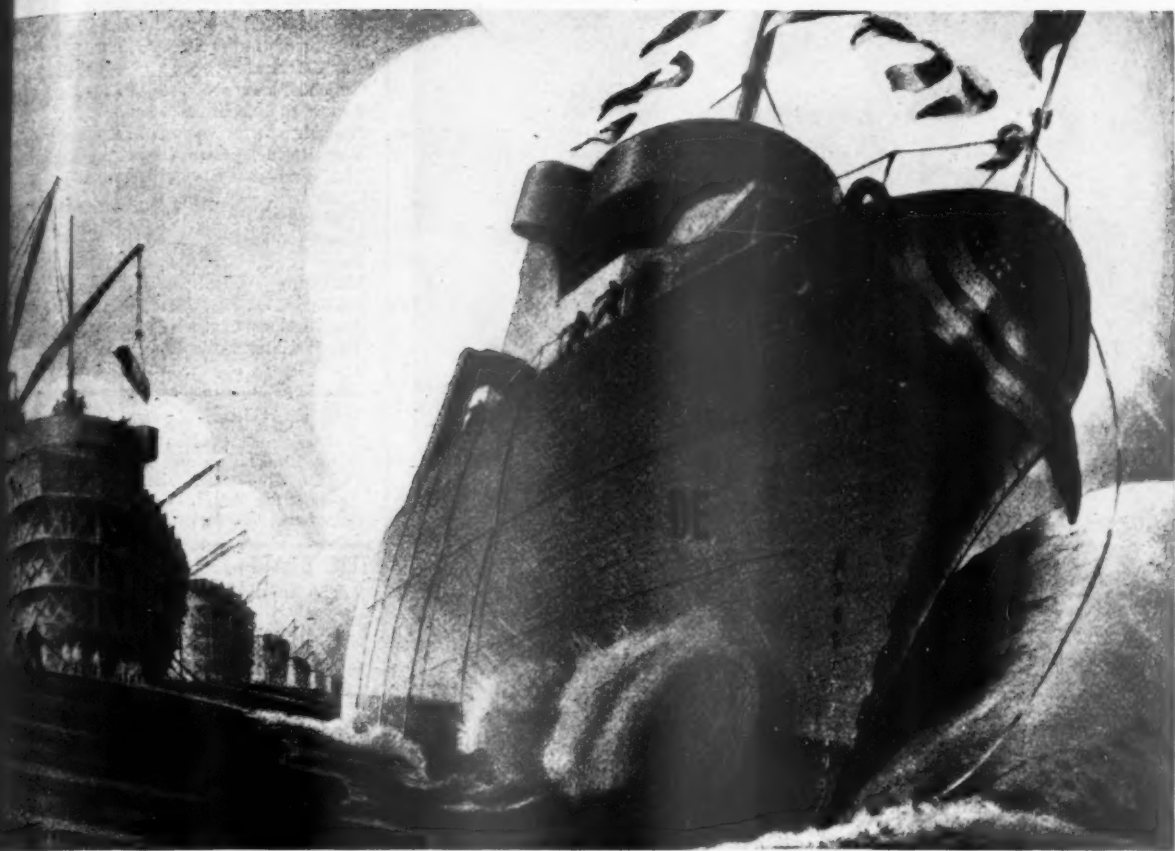
Carbide and Carbon Chemicals Corporation
ELECTRODES, CARBONS AND BATTERIES
National Carbon Company, Inc.

INDUSTRIAL GASES AND CARBIDE

The Linde Air Products Company
The Oxweld Railroad Service Company
The Prest-O-Lite Company, Inc.

PLASTICS

Bakelite Corporation
Plastics Division of Carbide and Carbon Chemicals Corporation



PRODUCTION LINES ARE BATTLE LINES: D-E Boats slip off the ways by the score . . . to smash wolf-packs, give in-shore cover to invasion barges, keep sea lanes clear.

BACK THE ATTACK . . . WITH WAR BONDS

ALL-OUT attack calls for all-out effort on the home front. Back the attack by buying War Bonds to the utmost limit of sacrifice.

Far from discouraging Bond purchases, the pay-as-you-go withholding tax puts income-tax payments on a current basis, making it easier to budget income to buy more Bonds. And the more Bonds we buy, the less risk of inflation, which hurts us all.

Let each of us do his full part for victory by increasing current War Bond purchases. Let each of us invest every available surplus dollar during the Third War Loan. When American boys are giving their lives, our war job at home is to enlist our dollars to the utmost limit—to back their attack.



BANKERS TRUST COMPANY
NEW YORK



Bomb-bay doors—or Bangalores ... they all take textiles!

What's the textile industry's war job?

Almost every finished product manufactured today for war or the home front takes textiles somewhere or sometime in its manufacture or use!

To equip one U. S. soldier takes the wool of five sheep! The cotton of a quarter-acre! Plus the processing of this material into special war fabrics by America's textile industry.

Small wonder then that the textile industry was second only to iron and steel in the total of its installed horsepower, 5,268,600 at a recent count!

Now using more than 60 million pounds of fibers a year and meeting all military demands upon it, the textile

industry must do much of its job with existing equipment. This means maximum emphasis on maintenance.

Hartford Steam Boiler's nationwide staff of inspection engineers enables this 77-year-old engineering-insurance company to do a unique job for textile mills... for the plants of many other industries. This job is to help keep boilers, generators, and other vital pressure and power equipment safe for operation... to aid in spotting flaws in this equipment before disastrous accidents can happen. In short, to help speed America to Victory!



Covers: Boilers • Pressure Vessels • Steam, Gas and Diesel Engines • Turbines • Electrical Equipment

**THE HARTFORD STEAM BOILER INSPECTION
AND INSURANCE COMPANY • Hartford, Connecticut**

BUSINESS WEEK

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WASHINGTON BULLETIN

WHAT THE WASHINGTON NEWS MEANS TO MANAGEMENT

Time to Tell All

Military developments may push the administration into postwar planning sooner than it likes.

The prospect of victory in Europe next year puts new steam behind demands for a comprehensive statement of the government's program for reconversion and demobilization. This threatens to upset the Administration strategy which calls for soft-pedaling postwar work until after the '44 elections.

So far, President Roosevelt hasn't committed himself on anything but a program of relief payments for soldiers and discharged war workers. On major questions—such as government ownership of industries, relaxation of controls, and plans to head off a postwar slump generally—he has dropped no hints.

Industry, and labor unions as well, are beating the government to the postwar punch. While Washington sits on its hands, individual companies and private groups like the Committee for Economic Development are rapidly sketching in a picture of the postwar economy as they want to see it.

Sen. George Gets Busy

Congress also threatens to steal the administration's show. Sen. Walter George's postwar planning committee has been stalling around during the summer while members pursued pet projects, but it is likely to get down to work soon after Congress comes back.

George has signed up the Brookings Institution to do research for his committee. The subject matter will include study of legislation restricting free enterprise and an estimate of how much government assistance industry will need to handle conversion.

There's plenty of postwar thinking within the government, but it isn't organized.

The Maritime Commission recently set up a committee to advise it on problems of a postwar merchant marine. The Treasury is busy with its plan for international currency stabilization, a theme with domestic implications that might or might not fit into the program the Administration finally adopts. The Bureau of Labor Statistics is whipping up estimates of postwar employment.

's Up to the President

WPB is plagued by forebodings on its part in reconversion and demobilization of industry. It has given some thought to the scope of the problem,

but it isn't at all sure to get the job. It's worried, too, about what will happen if it does. Even if its personnel hangs together, there is some doubt whether its organization, which now follows industrial lines, would lend itself to dealing with geographical problems of reconversion.

All this provides material for a postwar program if Roosevelt wants to pull it together. The question the Administration has to decide now is whether it will lose more by saddling itself with a detailed policy statement or by giving independent planners a head start.

Bottleneck in Tires

After heroic efforts to build a synthetic rubber industry practically from scratch, production will have to be held back unless tire fabricating capacity can be speedily expanded.

It isn't clear whether Rubber Director William Jeffers' office or WPB's Industrial Facilities has been asleep at the switch, or whether both have been slowed down by conditions beyond their control. At any rate, Jeffers submitted this week a tentative program calling for a \$95,000,000 expansion of tire

New Plan Ousts Buy-Sell for Food

The War Food Administration's compromise plan to settle the farm and food-price controversy—"to get food off the front pages"—would shift emphasis from subsidies and lower prices to holding the line as is. In general, top men in OPA, as redesigned by Chester Bowles, are all for the program.

But OPA economists and some of the advisers to War Mobilization Director James F. Byrnes and Economic Stabilization Director Fred M. Vinson want drastically lower prices for consumers. This they would try to achieve by increased government controls over farms and the food industry—by contracts with individual farmers and real government buying and selling of crops and processed food supplies.

● **Settlement Indicated**—Vinson and Byrnes will help President Roosevelt make up his mind on the controversy, but Food Administrator Marvin Jones has lined up an impressive list of political arguments in favor of WFA's compromise. With Congress in its present temper, WFA men argue, the smartest thing to do is to get enough money out of Congress to hold food prices where they are and then call it a day. As WFA men see it, here is what it would take:

(1) With no parity benefit payments in 1944 (BW—Aug. 21 '43, p. 26), Jones needs one billion dollars if he is to support prices in order to insure production of enough of the right kind of crops next year without having to increase consumer food prices.

(2) In the face of an unfavorable feed-dairy ratio, WFA men say they cannot maintain dairy production beyond November (page 29) without raising fluid

milk prices unless they get a \$100,000,000 feed subsidy, starting with the new corn harvest this fall.

(3) To hold bread prices at March, 1942, levels if the wheat market goes up, a straight subsidy on flour, to be paid at the miller level, is contemplated. This would cost from \$50,000,000 to \$100,000,000, depending on how high the wheat market went, and it would be started just as soon as wheat prices got beyond the base used in computing present flour ceilings.

(4) To continue its routine programs—loans on basic farm commodities and miscellaneous subsidies, such as on cheese and vegetables for canning—Commodity Credit Corp. must get an extension of life beyond Jan. 1, 1944, and must have more money. In addition, more money also will be needed if meat and butter prices are to be held at present levels through 1944.

● **Better Policing**—While this will hold the food-price line, OPA and WFA men hope the cost-of-living index can be squeezed down another point or two by unsubsidized price reductions (principally on fresh fruits and vegetables) and better enforcement in the food-price field. They point out that the Administration has qualified its rollback promises to labor by saying that it will stabilize the cost of living "as far as practicable" at the Sept. 15, 1942, level.

Politically speaking, WFA men say the beauty of their program is that it permits the Administration to continue talking about Sept. 15, 1942, levels, but it doesn't involve a fight with Congress over such dynamite-laden issues as government contracts with every farmer, or use the government buying-and-selling as anything more than a "washed sale" subsidy device.



A TORPEDO 8 times the length of a battleship! Roughly, that's how long a torpedo would be if, as it received its compressed air charge, it expanded like a balloon. Air—compressed to an incredible extent—starts the main engine which drives a torpedo 40 m. p. h. underwater!

AMERICAN CAN COMPANY, biggest manufacturer of torpedoes, encountered in a unique air compressor installation a difficult lubrication problem, solved by a Shell Industrial Lubricant.

HOT AIR—with a Wallop!

HOT AIR—325° HOT! That's how *hot* air gets when compressed from sea level pressure of 15 pounds per square inch to the terrific pressure inside a torpedo.

Amertorp, American Can subsidiary, recently announced it was producing torpedoes at *six times* the rate called for by Navy contract. Shell helps by supplying *twelve* different Industrial Lubricants.

One of these—Shell Compressa Oil—has the tough job of lubricating vital air compressor parts. These parts are subjected to intense pressure and 325° heat. Shell Compressa Oil under these severe operating conditions, does not break down... prevents excessive formation of carbon deposits, ring sticking, "blow-by."

As war production sets new records, proper lubrication becomes even more vital. Yesterday's solution is seldom good enough for today.

Constant improvement in Shell Lubricants is a major responsibility of the "University of Petroleum," Shell's research laboratories. Shell engineers apply these improvements in the field.

Are you sure your plant has the benefit of all that is new in lubrication as it develops?



First oil refinery to win the Army-Navy "E"—Shell's Wood River Refinery



Leaders in War Production rely on
SHELL INDUSTRIAL LUBRICANTS

city, made necessary because the rubber industry has been largely confined to barrage balloons, rubber boats, a multitude of other war products. WPB will clear Jeffers' program as soon as he submits it in definite form—much he expects to do pronto. After that, it will be up to Jeffers to demonstrate the ability for getting things done as he showed in jamming through the synthetic rubber program. Expectation is that speed will be gained by fanning out the plants into localities where labor supply is relatively easy.

How Much in New Taxes?

Treasury officials never were very hopeful of getting a \$12,000,000,000 out in the next tax bill, and now they are backing away from the idea of even trying for it. With Congress determined to write its own ticket, there's practically no chance of getting that much. The Treasury's problem now is to decide whether it should ask for what it thinks it can get or pad the request all figure on settling for a percentage. After playing with the idea of an excess profits tax on individuals, the Treasury finally came out flatly against it. The spending tax that was laughed out of Congress last summer has won a few converts since then, but there still isn't much hope for it.

Unless the Treasury can bring itself to swallow a sales tax of some sort, it can't have anything to suggest but higher income taxes, with or without the sugar coating of the postwar rebate that is implicit in compulsory savings.

Drive for Truck Trailers

WPB must soon decide how many trucks and truck trailers will be manufactured in 1944. The Office of Defense Transportation is talking in terms of 10,000 trucks, 25,000 truck trailers (exclusive of Army requests).

The need is greatest for heavy trucks, but, as the Army also wants mostly heavy-duty equipment, civilians probably will have to be satisfied with light and medium jobs. Of the 50,000 trucks remaining in the ration pool, only 3,000 are heavy units. Production of the 7,500 heavy units allowed by WPB in the last half of this year probably will lap over into January.

Truck trailers, in combination with light and medium trucks, may help meet civilian needs. (Fruehauf Trailer Co. is promoting a drive for 50,000 new trailers in an advertising campaign.) Stocks of trailers are reported to total about

1,600, and most of them are culls.

WPB's prototype chassis program, authorizing some 4,100 units in the third and fourth quarters of this year, got off to a slow start but is popular with the trailer makers since WPB permitted inclusion of the closed-top van type most in demand.

Ration Currency Wins

The argument that clinched OPA's decision to issue ration currency (BW—Aug. 14'43, p7) is that tokens would obviate the necessity for putting out new ration books every few months. Since

tokens do away with stamps of small denomination, a ration book may last almost indefinitely without being too bulky for the housewife's purse.

Ration Book 4, scheduled to reach the public in late October or November, may even last for the duration. In the long run, tokens will save the taxpayer money; it costs around \$1,500,000 to issue a new ration book.

446,000 Fathers

Latest gyrations of Selective Service arithmetic haven't brightened the outlook for fathers. This week the War

Paper Gets a New Boss

Washington's hopes for finding a way out of the progressive pulp and paper shortage (BW—Aug. 14'43, p19) centers in the appointment of Harold J. Boeschstein to coordinate the activities of four WPB industry divisions: Lumber & Lumber Products, Pulp & Paper, Containers, and Printing & Publishing.

Boeschstein's reputation as a troubleshooter got him his new job. He came to WPB last winter from the presidency of Owens-Corning Fiberglas to iron out the kinks in the Controlled Materials Plan for J. A. Krug, program vice-chairman. Now Krug has lent him to Hiland G. Batcheller, operations vice-chairman, until the pulp and paper problem is licked.

Washington is determined to do whatever it can to step up pulpwood cutting by further attacks on the manpower problem, increased prices, or any remedy that may be indicated. But since the pulp and paper industry is scraping the bottom of the inventory barrel, WPB thinks it will be impossible to increase production fast enough to avert further curtailment in paper consumption. The next cuts may be expected pretty soon, and they will be relatively light. But, if production isn't doing much better by fall, they'll go deeper. Some uses will be hit harder than others—WPB is thinking that paper for display materials might be eliminated entirely, that direct mail can take a deep slash—but all except the most essential civilian industries are in for some trimming. Newspapers and magazines are due for another cut, and WPB will try to make this one stick by not making exceptions.



Harold J. Boeschstein

While Boeschstein works on the problem at this end, a U. S.-British-Canadian fact-finding committee has been set up under the Combined Production & Resources Board to work on the international angles.

For a variety of reasons, the pulp and paper situation is a very hot potato:

(1) It's packed with political fireworks, likely to start exploding as soon as Rep. Lyle Boren and the members of his house subcommittee get back from their tour of American and Canadian paper mills.

(2) Paper is an easy commodity to hoard. WPB is afraid to say too much about shortages for fear of a repetition of the 1941 scare.

(3) Top officials in WPB suspect that favoritism and other shenanigans have entered into the handling of pulp and paper further down the line in their own organization and in OPA.

(4) To cut publishers, if they suspect Washington bungling, is to court bad public relations.

GO
ON TUESDAYS
WEDNESDAYS
THURSDAYS

AVOID THE PEAK
at the end of the week

☆
*Let us help you cut
down your New York
State travel*

☆
If you can't make that trip to
Binghamton or Troy during the
middle of the week, say to your-
self, "Is it necessary? Perhaps
Marine Midland can save me this
trip."

In these two places, as in 37
other cities and towns of New
York State, there are Marine
Midland Banks whose officers
know the *local* people and *local*
business. Perhaps by using their
knowledge you can eliminate
some travel to the benefit of your
company and your country.

MARINE MIDLAND BANKS
SERVE 39 COMMUNITIES
IN NEW YORK STATE



The
MARINE MIDLAND
TRUST COMPANY
of New York

120 BROADWAY

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WASHINGTON BULLETIN (Continued)

Manpower Commission released a new set of figures showing that something like 446,000 fathers will have to be inducted before the end of the year. This is a jolt not only to fathers but also to manpower officials who figured until recently that they could meet draft quotas for 1943 by taking only 300,000 men from class 3-A.

Rejections and deferments of fathers are expected to run better than 50%. Hence, to get 446,000 men in uniform, Selective Service would have to reclassify about 1,000,000 3-A's and put them through the mill. This means that a pretty sizable proportion of the 6,559,000 registrants will hear from their draft boards before Christmas.

Navy Wants More Men

Main reason for the change in estimates was a big jump in Navy requirements. Originally, the timetable called for 2,051,000 men in the Navy by Dec. 31, 1943. Now the Navy has raised its sights to 2,294,000.

WMC officially regrets the necessity for bigger calls, but it hasn't overlooked the fact that they will back up its attempts to chivy fathers into war jobs.

Another Blow to Laundries

The War Manpower Commission has a new order in the works putting the heat on industries paying substandard wages. The idea is to let workers shift jobs without a certificate of availability if their employer pays less than the 40¢-an-hour standard, even though he has an essential rating.

This puts additional teeth in the policy adopted in the recent revision of manpower rules (BW-Aug. 21 '43, p14) in which WMC directed that employees be given a certificate if they wanted to leave a substandard job.

Hardest hit by the new policy are service industries such as laundries. While these are often rated as locally essential, many work on wage scales far below the official standard.

Farm Leader Eyes Plums

Uneasy lies the head of Edward A. O'Neal, president of the powerful American Farm Bureau Federation. National and farm organization politics threaten his dominant position in the Washington farm lobby.

Earl Smith, for years the power behind the throne in the Farm Bureau by virtue of his vice-presidency and his leadership over the large Illinois state

organization, has been looking over the Republican Vice-Presidential nomination in 1944. (O'Neal is a southern Democrat.)

Smith is reported to have told friends that he has been significantly silent on whether he is available for the Farm Bureau presidency—where he would have a national forum from which to foster his Republican ticket aspirations.

Eastman, Meat Expediter

Transportation Director Joseph B. Eastman is making sure now that the Office of Defense Transportation won't get any part of the blame if a meat shortage materializes.

Anticipating a threatened bottleneck in moving livestock to market this fall, the ODT has set up a plan whereby the stock will be moved by truck under the direction of industry committees working with local ODT administrators. Motor transport is the key to the scheme, for, even in peacetime, trucks haul nearly 60% of livestock to the stockyards.

The bite in the program is the authority granted to the industry committees to recommend issuance, revocation, modification, or suspension of the certificates of war necessity required by livestock truckmen operating within their respective areas.

Capital Gains (and Losses)

The Army has just put together a primer for procurement officers, intended to serve as a guide in fixing prices in contracts. Ask for Army Service Forces Manual M 601, published by Purchases Division, ASF, Pentagon Building, Washington.

In private conversations, Jim Farley, who is working seriously against a fourth term, says Gen. Douglas MacArthur is the only man who can lick Roosevelt.

After much hemming and hawing, OPA finally announced this week that heating oil rations will be granted to consumers using less than 10,000 gal. regardless of whether their furnaces can be converted to using coal (BW-Apr. 24 '43, p7).

Rollback of used car prices to October, 1942, levels seems almost certain.

To jack up manufacturers having idle steel inventories into reporting them to the Steel Recovery Corp., WPB has put a Sept. 30 deadline on such reports, announcing that steel listed on forms mailed later will not be eligible for the special higher-than-scrap prices.

—Business Week's
Washington Bureau

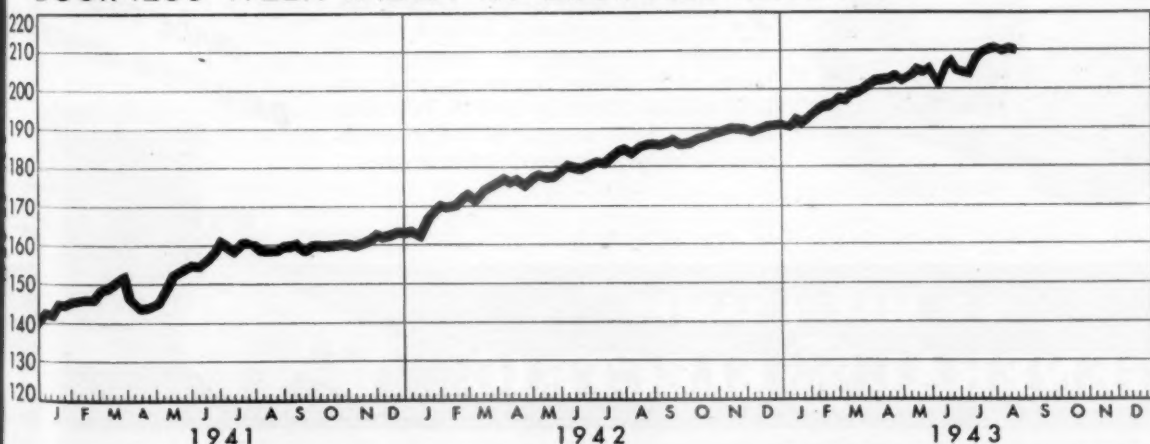
FIGURES OF THE WEEK

| | 8 Latest Week | Preceding Week | Month Ago | 6 Months Ago | Year Ago |
|---|---------------|----------------|-----------|--------------|----------|
| INDEX (see chart below) | *211.3 | †212.0 | 211.2 | 197.0 | 186.7 |
| PRODUCTION | | | | | |
| Steel Ingot Operations (% of capacity) | 99.4 | †98.2 | †97.4 | 97.7 | 97.3 |
| Production of Automobiles and Trucks | 19,820 | †19,800 | 20,130 | 17,830 | 20,200 |
| Engineering Const. Awards (Eng. News-Rec. 4-week daily av. in thousands) | \$6,731 | \$6,753 | \$10,267 | \$13,315 | \$33,878 |
| Electric Power Output (million kilowatt-hours) | 4,265 | 4,288 | 4,196 | 3,949 | 3,674 |
| Crude Oil (daily average, 1,000 bbls.) | 4,218 | 4,239 | 4,119 | 3,874 | 3,972 |
| Bituminous Coal (daily average, 1,000 tons) | 2,000 | 1,967 | 1,967 | 2,033 | 1,896 |
| TRADE | | | | | |
| Miscellaneous and L.C.L. Carloadings (daily average, 1,000 cars) | 81 | 79 | 79 | 76 | 81 |
| Other Carloadings (daily average, 1,000 cars) | 67 | 66 | 67 | 51 | 64 |
| Money in Circulation (Wednesday series, millions) | \$18,214 | \$18,101 | \$17,706 | \$15,845 | \$12,956 |
| Department Store Sales (change from same week of preceding year) | +4% | †+7% | +20% | +45% | None |
| Business Failures (Dun & Bradstreet, number) | 54 | 60 | 50 | 96 | 147 |
| PRICES (Average for the week) | | | | | |
| Not Commodity Index (Moody's, Dec. 31, 1931 = 100) | 245.4 | 244.9 | 244.1 | 246.1 | 230.9 |
| Industrial Raw Materials (U. S. Bureau of Labor Statistics, Aug., 1939 = 100) | 160.3 | 160.7 | 160.5 | 158.5 | 153.2 |
| Domestic Farm Products (U. S. Bureau of Labor Statistics, Aug., 1939 = 100) | 212.6 | 211.0 | 209.5 | 204.1 | 181.7 |
| Finished Steel Composite (Steel, ton) | \$56.73 | \$56.73 | \$56.73 | \$56.73 | \$56.73 |
| Crude Steel Composite (Iron Age, ton) | \$19.17 | \$19.17 | \$19.17 | \$19.17 | \$19.17 |
| Copper (electrolytic, Connecticut Valley, lb.) | 12.00¢ | 12.00¢ | 12.00¢ | 12.00¢ | 12.00¢ |
| Wheat (No. 2, hard winter, Kansas City, bu.) | \$1.39 | \$1.39 | \$1.40 | \$1.37 | \$1.13 |
| Sugar (raw, delivered New York, lb.) | 3.74¢ | 3.74¢ | 3.74¢ | 3.74¢ | 3.74¢ |
| Cotton (middling, ten designated markets, lb.) | 20.24¢ | 20.37¢ | 20.68¢ | 20.89¢ | 18.50¢ |
| Wool Tops (New York, lb.) | \$1.355 | \$1.340 | \$1.370 | \$1.246 | \$1.228 |
| Rubber (ribbed smoked sheets, New York, lb.) | 22.50¢ | 22.50¢ | 22.50¢ | 22.50¢ | 22.50¢ |
| FINANCE | | | | | |
| Stocks, Price Index (Standard & Poor's Corp.) | 93.2 | 94.0 | 97.4 | 85.5 | 68.9 |
| Medium Grade Corporate Bond Yield (30 Baa issues, Moody's) | 3.81% | 3.81% | 3.80% | 4.07% | 4.27% |
| High Grade Corporate Bond Yield (30 Aaa issues, Moody's) | 2.69% | 2.69% | 2.69% | 2.77% | 2.81% |
| U. S. Bond Yield (average of all taxable issues due or callable after twelve years) | 2.28% | 2.28% | 2.28% | 2.32% | 2.34% |
| Loans Renewal Rate, N. Y. Stock Exchange (daily average) | 1.00% | 1.00% | 1.00% | 1.00% | 1.00% |
| Prime Commercial Paper, 4-to-6 months, N. Y. City (prevailing rate) | 1-1% | 1-1% | 1-1% | 1-1% | 1-1% |
| BANKING (Millions of dollars) | | | | | |
| Demand Deposits Adjusted, reporting member banks | 34,311 | 33,796 | 33,386 | 30,620 | 26,718 |
| Total Loans and Investments, reporting member banks | 47,040 | 46,899 | 46,612 | 41,365 | 34,517 |
| Commercial and Agricultural Loans, reporting member banks | 5,740 | 5,714 | 5,618 | 6,081 | 6,712 |
| Securities Loans, reporting member banks | 1,373 | 1,356 | 1,342 | 963 | 973 |
| U. S. Gov't and Gov't Guaranteed Obligations Held, reporting member banks | 34,574 | 34,437 | 34,207 | 28,424 | 20,425 |
| Other Securities Held, reporting member banks | 2,906 | 2,919 | 2,956 | 3,260 | 3,458 |
| Excess Reserves, all member banks (Wednesday series) | 1,290 | 1,200 | 1,188 | 1,992 | 2,103 |
| Total Federal Reserve Credit Outstanding (Wednesday series) | 8,586 | 8,718 | 8,033 | 6,214 | 3,615 |

preliminary, week ended August 21st.
 ceiling fixed by government.

† Revised.
 § Date for "Latest Week" on each series on request.

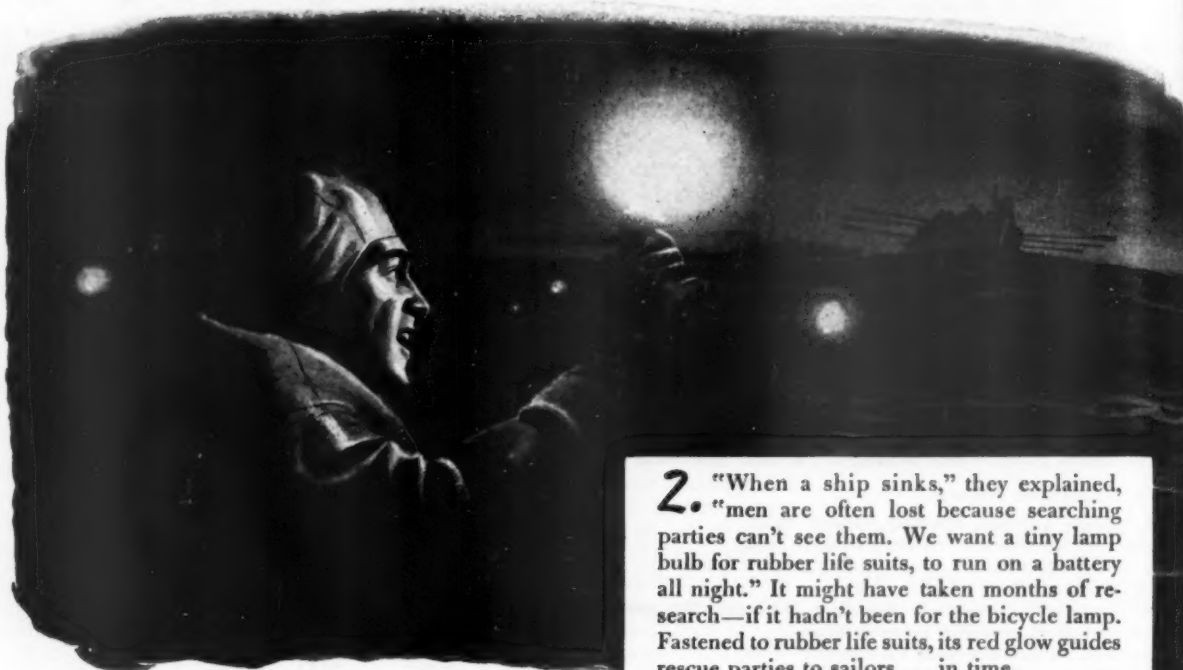
BUSINESS WEEK INDEX OF BUSINESS ACTIVITY





The Bicycle Lamp that went to Sea!

1. When G-E engineers designed a bicycle tail lamp years ago, they never figured this same lamp would some day save lives at sea. All they wanted was a small rugged lamp that would last a long time and burn very little current, so kids wouldn't have to be always buying new batteries. Then the Coast Guard came to us with a problem...



2. "When a ship sinks," they explained, "men are often lost because searching parties can't see them. We want a tiny lamp bulb for rubber life suits, to run on a battery all night." It might have taken months of research—if it hadn't been for the bicycle lamp. Fastened to rubber life suits, its red glow guides rescue parties to sailors... in time.



3. Time and again General Electric has supplied critically needed lamps overnight, by tapping the storehouse of lamps and lighting knowledge amassed since Edison's first lamp in 1879. Year after year it has been the goal of G-E research to make lamps that *stay brighter longer!*

**MADE TO STAY
BRIGHTER LONGER**

THE BEST INVESTMENT IN THE WORLD IS IN THIS COUNTRY'S FUTURE...BUY WAR BONDS

G-E MAZDA LAMPS
GENERAL  ELECTRIC



Hear the General Electric radio programs: "The Hour of Charm" Sunday 10 p. m. EWT, NBC; "The World Today" news every weekday, 6:45 p. m. EWT, CBS.

THE OUTLOOK

Bottleneck: Manpower

Everyone finally is coming to the inescapable conclusion that the crux of situation, as regards both war and civilian output, is manpower—and there doesn't appear to be any easy solution.

As the conclusion of the Québec conference ushers in the climactic period of the Allied offensive, the domestic economy finds itself beset with the most difficult period for production since the war began. Manpower is the key.

Full Significance

It is not merely that the War Production Board this week finally decided, on the basis of a survey of 600 lagging war plants, that labor shortage accounts for munitions lag in the overwhelming majority of instances. Beyond that, we have arrived at a point where interacting manpower difficulties spell multiplied production bottlenecks and therefore higher operating costs and reduced overall industrial production in coming months.

Extreme instance of the effects of the manpower shortage is the cutback in rebuilding ordered in the Seattle area in order to free workers for bomber assembly (page 17). Such broad revision of specific war programs because of manpower had already been foreseen (BW—Aug. 14 '43, p15). Even the labor priorities system inaugurated in Detroit (page 1) as much as implies that we must now pick and choose among our arms solely for reasons of manpower.

Contrast in Metals

Broader in importance are the effects on materials. Despite lack of labor for aluminum plants, quantities of the light metal are going unused simply because aircraft factories haven't the labor to fabricate the material—though the curves of both aluminum and aircraft production are rising. On the other hand, more than 10% of the copper mines' labor force has been lost since the beginning of the year; if this trend continues, supplies of the metal undoubtedly will fall below current allocations.

In general, relative tightness of raw material supply to demand will depend on whether the manpower shortage is more acute at the material-producing or material-fabricating end. (Exceptions to this rule, of course, are such extraneous factors as the rise in imports and the improvement in farming weather.)

In any case, we can no longer depend on a close relationship between materials production and consumption. Extend

these discrepancies between labor supply and material supply through the several stages of manufacture, up and down the economy, and a rough picture of the next stage in production will appear.

Without prejudging the scope or the efficacy of the additional administrative measures which could be taken, even at this late date, it is obvious on the face of things that manpower cannot be immediately or completely redistributed in accordance with any system of priority of war need.

Coal mine employment, still declining each month, is off almost 20% since Pearl Harbor. With production lagging, the next step will be an attempt to extend working hours further. (The mines have already stepped the workweek up from 35 to 42 hours.) Short-

ages, which would have serious implications for transport, power, steel, etc., may not be averted even by a longer week.

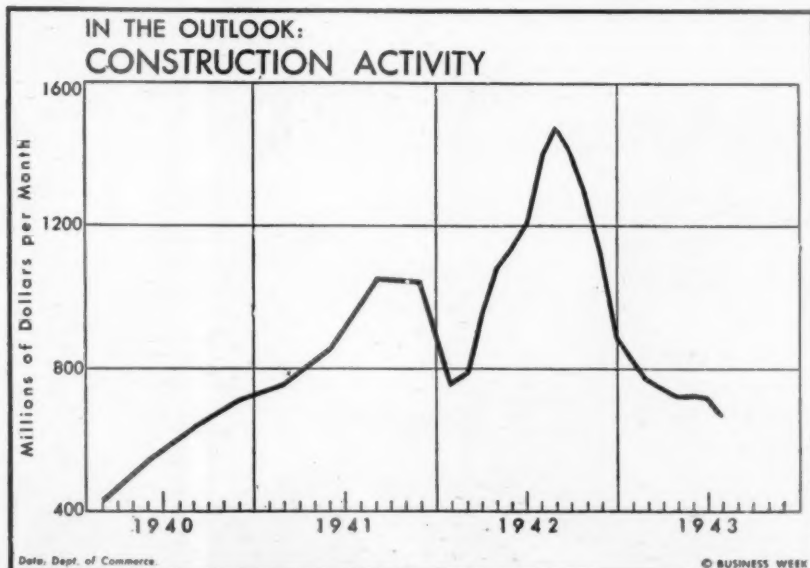
Other basic lines, already sorely beset by labor shortage, are lumber, paper, lead, and zinc.

Shortage of Services

Now that one of the munitions-manpower difficulties has been diagnosed as the tendency of women workers to quit or be absent from jobs because of shortages of essential civilian supplies and services, it is also to the point to note labor deficiencies in canning, laundries, textiles, leather, and other civilian lines. There is special significance to the fact that raw cotton consumption at textile mills during July was down 16% from 1942.

In such other basic industries as steel, railroads, rubber, chemicals, and petroleum, executives are convinced that from now on the level of their operations will depend on the adequacy of their labor forces, rather than on equipment or materials.

Even when account is taken of the



Construction activity has continued to decline only slightly through most of this year (BW—May 1 '43, p13), following the sharp drop from the August, 1942, peak. Thus, little material or labor has been released in recent months from construction to the production of munitions. Present building volume, running about \$8,000,000,000 annually, still constitutes an appreciable segment of our total economic activity. Moreover, until a

change in the war alters all trends, construction will ease slowly—with perhaps a \$5,000,000,000 rate as rock-bottom about a year from now. For, though military and industrial building still are dropping off, certain minimum new needs constantly turn up; in addition, some increases recently have been permitted in new homes for war workers and in farm construction, thus slightly expanding the total of privately financed construction.

temporary and seasonal addition of students to the labor force, nonagricultural employment is still declining. Now the total employment curve in strictly industrial lines—excluding trade, service, government, and similar work—is beginning to turn down. This cannot fail to be reflected in over-all industrial production before long—even were manpower smoothly distributed to the industries and areas where it is worst needed, to avoid the inefficiencies and bottlenecks that maldistribution of labor increasingly will create.

Pinch Will Get Tighter

With war production rising—even though not as sharply as the schedule—it is patent that the civilian sector of the economy will continue to contract. This will hold even if price increases mask the physical decline behind a dollar rise. This should not be forgotten even though there are headlines regarding small, specific moves to relieve the worst civilian shortages (page 19).

Brake on Lewis

Strike issue arises again, with return of mines and turn-down on travel pay, but NWLB's new powers impose restraint.

"Will John L. Lewis strike?"

That was the uppermost domestic question in Washington—till midweek, anyway. Three developments made the fear of another coal stoppage far from baseless. They are:

(1) The return by Fuel Administrator Harold Ickes of 58 mines to private ownership. Still on the record—unamended—is the United Mine Workers Union statement last June which was included in the order that sent the miners back to work and ended the soft coal strike: "This arrangement is predicated upon operation of the mines and their collateral production units by the

U. S. government and will automatically terminate if governmental control vacated prior to October 31."

(2) The 8-4 decision of the National War Labor Board against a portal-to-portal pay clause in the contract which the U.M.W. concluded with the Illinois soft coal operators and which came to the board for approval. All other provisions in the agreement were upheld, including payment of time-and-half for hours worked over seven in any one day.

(3) An imminent NWLB ruling against payment for travel time in anthracite mines. The board finished hearings in the anthracite case last Monday after hearing an impassioned address by Lewis in which he warned of a production crisis impended if the union's demands were not met. At the announcement of the Illinois ruling, Lewis' chances of getting portal-to-portal pay for anthracite were figured as close to zero.

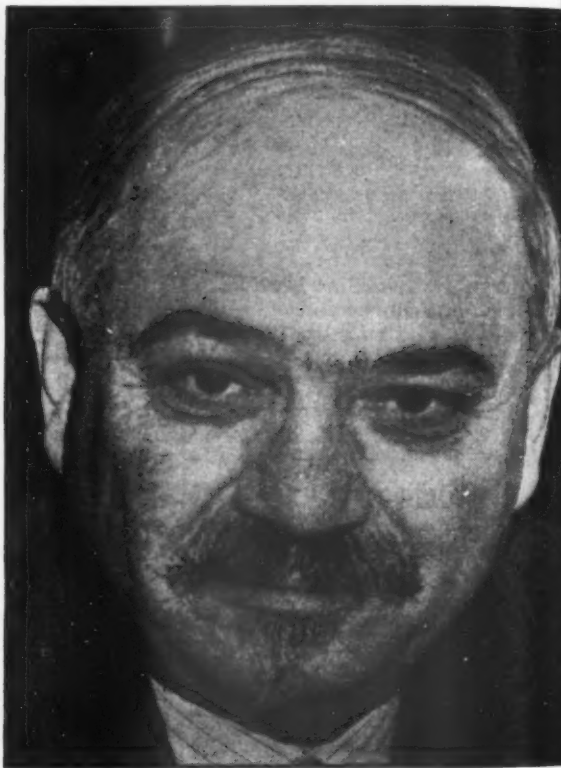
• **Deadlock Again**—Last spring an impasse on the portal-to-portal pay issue led directly to the coal shutdown which



MOSCOW MANEUVER

Announcement last week of the removal of Maxim Litvinov (left) as Soviet Ambassador to Washington was like a bomb tossed over the Citadel wall in Quebec where President Roosevelt and Prime Minister Churchill were conferring on the future course of the war. It followed last month's shift of Ivan Maisky (right) from his ambassadorial post in Lon-

don to become Vice Commissar of Foreign Affairs in Moscow. The two events combined to raise again the ominous shadow of a possible German-Soviet peace and were obviously timed to exert pressure on Britain and the United States to act on the western front. Removal of Litvinov served as a reminder that the career of no other diplomat in recent history has been so closely related to the tenor of his nation's foreign policy. In 1939,



Litvinov dropped from sight as the U.S.S.R. signed its expediency pact with Germany. Two years later Litvinov stepped from a plane in Washington on the day of Pearl Harbor. Last spring, 67 and ailing, Litvinov returned to Moscow for an operation. Which way the wind blows today may be revealed either by Litvinov's continued nonparticipation in Soviet foreign affairs or by the nature and locale of his next official post.

WAR CORRESPONDENCE

NAEB Gets Up Steam

Board charged with supplying civilians in North Africa and with spurring two-way trade is rapidly putting this area back on its feet, both agriculturally and industrially.

ALLIED HEADQUARTERS—North Africa—The North Africa Economic Board, born deep in the tunnels of Gibraltar in the days preceding last November's landings in Algeria and French Morocco, has grown rapidly in the last ten months. Now it is an organization of nearly 400 people who, through the local French and native authorities, have kept the civilian economy of the area from Dakar to Tunis—2,800,000 square miles with a population of 32,000,000—operating with a minimum of disruption and hardship.

• **Nature of Authority**—Supreme in the economic field (BW—Aug. 14 '43, p. 44), NAEB coordinates the field activities of the Lend-Lease Administration, Treasury, Office of Economic Warfare, Bureau of the Budget, Combined Raw Materials Board, Combined Food Board, War Shipping Administration, and Office of Foreign Relief & Rehabilitation Operations. (The State Dept.'s Office of Foreign Economic Coordination tops NAEB in policy matters.)

Because French Africa has been made an American sphere of influence, Americans outnumber British in NAEB personnel by about ten to one (in contrast to the Middle East where the British are dominant).

• **Machinery Lacking**—Except for sugar and tea, North Africa is largely self-sufficient as far as food is concerned. But it lacks medical supplies, textiles, coal, oil, machinery, and transport equipment. As soon as the first period of reorganization is completed and the first full harvest is gathered—and that time is almost at hand—the country should be able to pay for most of the imported supplies with surpluses of food and minerals.

(Other countries which may soon be supplied by similar boards will not be able to get two-way trade going so quickly. Greece, for example, is a poor country that always imports much of its wheat and flour, and, following systematic draining by the Axis, will desperately need all kinds of food and clothing. Similarly, 40,000,000 Frenchmen, who may be liberated within a year, make up a very highly developed market and will require everything from needles to turbines.)

• **Strategy of Food**—In North Africa, drained by the Nazis, NAEB's first job was food supply. After studying local demands for 300,000 tons of flour last winter, the board slashed the order to 90,000 and stood by with emergency

stocks in hand to make sure that this drastic cut caused no acute hardship until this year's harvest.

Later, after the fall of Tunisia, when NAEB followed the army into Tunis, the civilian bread ration was doubled within five days by drawing on flour supplies which the board had been able to stockpile in Algiers between November and May by careful handling of flour rations. Also, milk and other sorely needed supplies were distributed.

• **From Ceylon and U. S. A.**—Tea—and the sugar to sweeten it—are as important to the Arab as coffee to the average American. NAEB rushed tea from Ceylon and sugar from the United States to help the French authorities maintain the barebones ration already in force.

These two items, along with flour, constituted 70% of the goods shipped to North Africa in the first seven months of NAEB's operations. However, the area has been helped to the point where it is getting well back onto the road to self-sufficiency, and total food shipments for the last half of 1943 are not expected to top 80,000 tons.

• **Errors Admitted**—NAEB made some mistakes during its first year, as was



Ragged Algerian Arabs trudge homeward these days with armfuls of American textiles, makings of sorely needed burnouses. Lend-lease, operating as the import division of the North Africa Economic Board, sells the material to the French government. It then passes to distributors and from them to retailers who market the cloth at official ceiling prices under the supervision of the local mayors.

American business is watching for the first signs of international trade resumption. Only last month Britain and the United States raised the ban on business communication with North and West Africa. But even before this, private import and export trade with Africa, under the watchful eye and strict regulation of the North Africa Economic Board, described in the Aug. 14 issue of Business Week (page 44), had become a reality.

Now Business Week's Foreign Editor gives executives a first-hand account of the operations of NAEB after a survey of the board's functions which extend from Dakar, Casablanca, and Algiers to Tunis. This is a report on the organization which has supervised the movement, under lend-lease, of nearly 200,000 tons of civilian goods to Africa for which the French committee has paid \$25,000,000 to date.

For American business, North Africa holds little promise of rich postwar markets, but the functions of NAEB will be duplicated by similar agencies in other liberated areas.

only ended after the government took over the bituminous industry. Now the dispute over compensation for the mine gate to their work places has reached the same deadlock stage.

In contrast to last spring, however, NWLB now has enforcement powers which can make a strike a far more serious undertaking for a union than it has been in the past, and the Connally-Smith Act, which was aimed specifically at Lewis, can be used to punish strike leaders. That's the one factor in the situation which keeps a mine stoppage from being a sure thing.

May Seize U.M.W. Funds—The possibility of imprisonment under the Connally-Smith Act will not deter Lewis. It is certain that the Administration will not give him a chance to pose as a martyr. But NWLB's authority to get compliance with its orders and prevent strikes may be just as elastic as the situation dictates and as the attorney general chooses to make it. Already there are inspired rumors which suggest that U.M.W.'s treasury may be seized in the same manner as the government has over the assets of a firm.

Lewis' power is held through his union machine, backed by U.M.W.'s \$100,000,000 war chest. Without that treasury, Lewis would be powerless.

to be expected. Seed potatoes were brought in the first supply ships to arrive behind the troops because, due to the climate, seed stock cannot be stored from season to season. But the imports arrived too late; planting must be completed in North Africa by the end of October.

Heroic efforts were made to get textiles into the country to meet the desperate shortage caused by nearly two years without deliveries from France. Early shipments, however, foolishly provided a wide variety of materials when the greatest need was for the coarse unbleached materials used throughout the country for clothing.

• **Coals to Newcastle**—Canned vegetables turned up—in a country famed for its fresh fruits and vegetables—only because ships were diverted during the early days of the occupation to meet serious supply shortages in metropolitan centers. The tins originally were shipped as Army field rations.

The stage really seemed set for high comedy when, among the early shipments, a consignment of lipstick was discovered. However, officials soon proved that, in a country cut off for two years from all normal supplies of cosmetics, these were a useful bargaining commodity with which to coax out hoarded supplies of wheat and textiles.

• **Revival in Cement**—Building North Africa back to sufficiency as to food has been simpler than restoring industry, but progress has been made in the latter line, too. Cement production had dwindled because the area was unable to import enough coal to keep its power plants going at anything like full capacity, and because machinery was wearing out. Since the occupation, replacements have been shipped and 400,000 tons of British coal delivered. Now the local cement industry is running at capacity—more than sufficient for local needs.

French demands for materials to complete a large new hydroelectric project have been denied, however. Surveys showed that the turbines could not be installed in time to help win the war. Yet the dam itself was nearly finished, and enough equipment will be delivered to put the irrigation system into operation in time for the next crop season. (London and Washington experts agree that irrigation will enable farmers to supply fresh tomatoes for ten months out of the year instead of for three.)

• **Britain Gets Sardines**—Largest project approved by NAEB in Morocco is the reopening of the sardine factories on the Atlantic. This was made possible by placing of a British order for 500,000 cases (for home consumption) and the allocation of enough tinplate from England to handle the pack.

The sardine industry had been built by the French before the war, and the

Germans had poured equipment into it after the fall of France but had not succeeded in getting much of a return on the investment. With fully experienced local managers to handle the business—from running the fishing fleets to delivering the finished product—NAEB needs only to provide the tinplate and inspection.

• **Squelching the Bad Boys**—Some difficulties have been encountered in local distribution and in building two-way trade, but none has been particularly vexing. There are black markets, for example, but NAEB figures the way to end them is to deliver supplies rather than police the populace. Local government agencies and trade associations have been widely used to carry out economic policies of NAEB, and occasionally a trade association, at the outset, discriminated against small dealers in distribution of supplies; those that persisted in malpractice now get the cold shoulder from the board.

Most important product for North African export trade, aside from foods, is phosphate rock used mainly in fertilizer. With a few machinery replacements and a steady demand from Britain and Portugal, ships that have unloaded military supplies reload with phosphate at specially equipped docks.

OPA's New Deal

Bowles is dressing up the agency to meet a querulous Congress and is hiring business men as fast as he can.

While Price Administrator Prentiss M. Brown is on vacation, OPA's new general manager, Chester Bowles, has buckled down to the job of licking the price agency into shape to meet the returning Congress.

• **Two in the Can**—Bowles gets no credit for the fact that Congress' two pet hates—grade labeling and professors—have been thrown in OPA's ash can, but the death of these issues will add to his prestige all the same. Grade labeling was officially buried this week in a comprehensive OPA release enumerating the instances in which it has been repealed to conform to congressional mandate. Some of the professors linger on in an advisory capacity, but Bowles is filling the policy-making positions with business men as fast as he can find them.

Most important appointment was that of James F. Brownlee (Frankfort Distilleries, General Foods) as deputy price administrator to succeed Don Wallace several weeks ago. Two division administrators have been added under Brownlee—Reagan P. Connolly (Interstate Department Stores) to head a new Consumer Goods Division, and



Food pricing will now be the jurisdiction of Jean F. Carroll.

Jean F. Carroll (Kroger Grocery Baking Co.) to head the Food Price Division.

• **Aces up His Sleeve**—Bowles has handful of other administrative cards in his sleeve which should look good to the business man, who is counted on to report to Congress on the new order OPA. These are the aces:

(1) **Enforcement**—Bowles is drawing a sharp distinction between enforcement and compliance. Local price panels are being told to offer all possible aid to the befuddled retailer, but to off the tough talk. Confirmed price violators will get rough treatment from enforcement officials, however.

• (2) **Decentralization**—Field administrators are being given more authority (they will be allowed to hire and fire their own personnel, for one thing) though this won't be carried to the extent of letting a local board in Portland set prices on Maine potatoes. Frank Marsh, one of Bowles' two new assistant general managers, with a long record OPA's San Francisco office, will be liaison between the regional offices at Washington. The other assistant general manager, James Rogers, was Bowles' general manager in the Benton Bowles advertising agency and will be his alter ego in Washington.

(3) **Simplification of Regulation**—Bowles means to take a big crack at the toughest of all OPA problems. A committee probably will be set up to have the final say on all regulations and price releases of the fruit cake variety.

• **An Easier Life**—Creation of the Consumer Goods Division is part of Bowles' plan to reshuffle the various OPA industry divisions in a way that will (it is hoped) make life easier for the business man. Consumer Goods will get the biggest part of the old Service & Consum-

able Goods Division plus part of the textile, leather & apparel division, so that a department store manager who comes to OPA with a briefcase full of troubles will be able to dump them all on one desk.

Further changes in the division setup will depend largely on the men Bowles and Brownlee get to fill the top spots. Sumner Pike stays on as head of the Metal Pricing Division (instead of going back to the Securities & Exchange Commission, as now seems likely), or if a strong man can be found to replace him, Metal Pricing probably will remain a separate division.

How They'll Split—Industrial Materials and Industrial Manufacturing probably will remain as separate divisions, and one of them will get whatever part of the Textile, Leather & Apparel Division doesn't go to Consumer Goods. Restaurant Pricing may be thrown in with Food. Nobody knows what will happen to the other service branches.

The real change in OPA, however, is the one that is counted to pay off with Congress and the business man, is not in administrative procedures but in atmosphere. Bowles may not be able to transform the country's favorite whipping boy into a Prince Charming, but he figures he can at least lift some of the curse.

Morale Is Up—Incidentally, Bowles means to accomplish this without alienating the hundreds of OPA small fry who were adherents of the banished professors and who are staying on. The fact that he is known to be a firm advocate of price control and his own announcement that OPA would not become a "walking doormat" have brought most of them over into his camp. As a result, morale among OPA personnel is well above the all-time low it hit last June.



Reagan P. Connally, head of OPA's new Consumer Goods Division.

Lift for Boeing?

WMC orders shipyards to lay off 14,000 in hope they'll move to aircraft. Army surveys Los Angeles and Hartford needs.

As government agencies concerned with souping up production of aircraft began to shape plans this week for an assault on the industry's grave manpower problem (BW—Aug. 14 '43, p16), the regional office of the War Manpower Commission in Seattle took matters into its own hands to provide immediate relief for Boeing Aircraft Co.

• **Shipyards Raided**—Under implied threat of "sweeping investigations" for failure to comply, the regional WMC office ordered Puget Sound shipyards to lay off some 14,000 workers, or about 14% of those so employed. A month ago the Army tried to give Boeing a lift by canceling a dozen contracts in the Seattle area to release men for more vital work, particularly at the aircraft plant (BW—Jul. 31 '43, p78).

Only incorrigible optimists can see any consequential relief for Boeing in the shotgun attack on the shipyards, because aircraft wages are lower. Chief beneficiaries likely will be the metal mines, the logging camps, and the Kaiser shipyards in Portland, Ore.

• **Retroactive Bonus**—Two other developments, however, are expected to help Boeing. The National War Labor Board last week ruled that present employees who had quit their jobs at Boeing between July 6, 1942, and Mar. 3, 1943, but have since returned, will get a retroactive pay bonus of \$2.25 a week; and that former employees who return within the next 60 days also will get the bonus after they have been at work 60 days. Additionally, WMC has given Boeing permission to recruit workers in states between the Rocky Mountains and the Mississippi River and in Louisiana, a concession much desired by all West Coast plane producers.

Boeing also plans to open, on Sept. 20 at Bellingham, Wash., the third of its "satellite" plants, a device by which the company endeavors to take full advantage of the manpower available in local labor pools.

• **Surveys Launched**—In two other sectors, the War Dept. is coming to grips with manpower shortages. The department announced last week that surveys are now being conducted in the Los Angeles and Hartford-New Britain areas to determine how the critical needs there can be met. In both cases, all types of labor are short. Both areas are classified as Group I (acute labor shortage) areas by WMC.

Consideration is being given, the department said, to the transfer of some



TICKETS ARE SHORTER

Air travelers requiring stopovers or transport on more than one plane often wind up with tickets almost a yard long. Promising to cut this burden while slashing company man-hours and costs is a new simple ticket devised by George Fleming (above), auditor for United Air Lines. Its size ranges from 5 in. to 8 in. and is quickly issued—needing less time and paper than old types which measured from 6 in. to 25 in.

contracts out of these areas. But the department also said that its announcement is not to be considered as a directive to terminate contracts. This assurance undoubtedly was thrown in to placate local people, but it can only mean that Group I designation henceforth will be enforced in the two areas with respect to renewal and placement of contracts to the extent that the nature of the work permits.

• **Variety of Work**—Plane production dominates the Los Angeles area, but other goods also are involved. In the Connecticut Valley, the variety of work being done is much more diverse.

This technique of analyzing the production job being done by these towns that are really in trouble and seeing what can be done elsewhere will probably be employed on a wider scale. The Boeing "satellite" stunt of decentralizing part of the plant's job may be applied. Other expedients may be tried.

• **Willow Run Example**—It is unlikely that Los Angeles will lose any major aircraft contracts, although it probably will lose some subcontracts. Some of the contractors shipping in subassemblies to Los Angeles may be asked to ship in more complete subassemblies, for instance. This was done with Wil-

low Run. Engines came into Willow Run from other Ford plants completely assembled, but without certain key fittings. WPB Vice-Chairman Charles E. Wilson ordered Ford, over Ford's protest, to add some of these fittings at his other plants, taking the work load off Willow Run. Ford did so and found it a successful production technique.

Fight over Ships

Cut in number of Victory models to be built in 1944 from 1,036 to 339 raises argument over speed of postwar fleet.

Revision of the 1944 American shipbuilding program—decreasing the emphasis on fast Victory ships—wrung a howl from merchants already brooding over postwar shipping prospects.

Next year's shipyard production will top 20,000,000 tons to bring the American merchant marine far above the estimated 44,000,000 tons set for the end of 1944.

• **From 1,036 down to 339**—The earliest 1944 building schedule put 1,036 vessels in the "fast ship" category, and 411 contracts were signed for production of Victory ships. This program has been trimmed, but not so drastically as was first suggested. Contracts for 92 ships were canceled, dropping the Victory ship quota to 319 (BW—Aug. 21 '43, p8), but 20 have been reinstated. Also in the "fast" category will be 300 C-type freighters.

In addition, 340 tankers of all types and 820 Liberty ships will be built to bring the 1944 construction total to 1,799 vessels.

• **Navy Gets First Call**—Despite deep speculation on the postwar competitive position of the U. S. merchant marine, the ultimate key to the Victory ship cutback is in WPB where squeezes between Navy requirements and Maritime Commission plans are ironed out. If the Navy needs turbine-gear engines for war vessels, the merchant marine will go without faster cargo vessels. Actually, except for speed, the Victory and Liberty ships are nearly twins. Here is how they compare:

| Specifications | Victory | Liberty |
|-----------------------|---------------|---------------|
| Length | 455 ft. | 441.5 ft. |
| Beam | 62 ft. | 57 ft. |
| Deadweight tonnage .. | 10,800 | 10,800 |
| Cargo tonnage | 9,146 | 9,146 |
| Engine horsepower .. | 6,000 plus | 2,500 |
| Propulsion (steam) .. | Turbine-Gear | Reciprocating |
| Decks | 3 | 2 |
| Speed | 15 knots plus | 11 knots |

• **Opposing Views**—Shipping circles jumped on the cutback in Victory shipbuilding to air their views on postwar competition. Partly responsible for the outburst was the rapid-fire announce-

ment of Maritime Commission postwar studies, and of the Combined Shipbuilding Committee which participated in the cutback decision. The first project has not moved far enough beyond the thinking stage to jimmie production plans, and the combined Anglo-Canadian-American committee is less dominated by British connivers than by concern over meshing Navy and Maritime Commission needs for power equipment with WPB's restrictions. The committee's chief claim to fame so far has been rationalization and simplification of ship design and material use.

Shippers maintain that peak production in American shipyards throughout 1944—and 1945, unless victory is cinched by then—will give America the world's slowest merchant fleet. In 1937, the United States ranked fifth in cargo tonnage capable of better than twelve knots with only 54% of the fleet falling in that category. By comparison, 63% of British cargo ships and 72% of German merchantmen were fast boats.

• **Postwar Potential**—By juggling announced building of U. S. merchant

ships with estimates of sinkings (which do not break down by ship types), it can be surmised that the U. S. may emerge from the war with little more than 30% of its merchant fleet capable of better than twelve knots. However, the whole argument over ship speed, labor costs, subsidies, and shipping competition will be threshed out in Allied conferences later.

Foreign traders and shipbuilders have always worried in wartime about the intrinsic difference between ships. Of all the war-essential products, ships are among the few which serve peacetime as well as military ends. Cannon can be pedestaled on post office lawns, tanks can be stored in armories between parades, and infantry weapons can be sold in Latin America and Indo-China. Ships must either ply the seas for profit or be tied in graveyards.

• **The Issue Simplified**—Today the issue is not postwar trade, but rather conclusive maritime supremacy over enemy submarines and successful transportation of every essential of battle to the right front at the right time.



LAKE OF OIL

This week the first head of Texas oil in the Big Inch flowed into New Jersey refineries—ultimate goal of the huge pipeline project. But the trip was not without mishap. The line sprang two leaks in Pennsylvania, the most spectacular on the Doylestown farm of Harry Cope. Spying a gusher in his field, Cope telephoned an alarm, but before pumping halted, 42,000 escaped gallons had formed a sizable lake (above). Repairmen, including R. B. O'Neill, assistant general superintendent of War Emergency Pipelines, groped in the slime for the break, repaired it in a few days. Next job—cleaning up Cope's farm.



More for Civilians

WPB weighing scheme to take the services out of the civilian markets by quarterly directives on manufacturers.

Reports that refrigerators, washing machines, vacuum cleaners, electric irons, and such soon will replace war materials on the assembly lines are well spiced with exaggeration. But barring unforeseen military disasters, civilians are going to get more than they expected, sooner than they expected.

• **Far Less than Demand**—It is better than an even bet that the Office of Civilian Requirements' first-quarter steel allotment next year will include a hefty tonnage for electric irons. Either washing machines or refrigerators are likely to come along in the second quarter, perhaps sooner. But there are two things to keep in mind: (1) Steel that goes into consumer goods next January won't turn up as a finished product until the middle of 1944, or later; (2) initial production will be far less than demand.

WPB is considering a device that may lick the toughest problem—the way the military procurement agencies load manufacturers up with high-priority orders until they are forced to default on deliveries to civilian markets.

• **Civilian Allotments**—Manufacturers producing for both civilians and the military would receive quarterly directives from WPB instructing them to ship a specific percentage of output to civilian suppliers. The Army and Navy could overrule this directive only with the AAA "emergency" rating.

Of course, plugging the big leaks at the manufacturing level won't keep civilian goods from trickling out to the Army and Navy through wholesalers and even retailers. WPB knows that it was at these levels that the services raided civilian stocks of such items as auto repair parts, radio tubes, cutlery, and hardware. Hence, OCR is gunning for a directive aimed at wholesalers, but OCR admits that it would be almost impossible to enforce one against retailers.

• **May Require a Stamp**—Directives would be issued to manufacturers of standard finished goods for which there are both military and civilian demand—cutlery, kitchen ware, clocks and watches, plumbing and heating supplies, and tools. As an additional precaution, manufacturers may be required to stamp goods destined for civilians.

Directives will be coupled with tighter scheduling which will insure that civilians get what the requirements committee said was coming to them. OCR is talking about "production budgets." In the second and third quarters, for example, production of 2,000,000



LITTLE LOCOMOTIVE

By doubling in brass as a switch engine in Australia, the American Army jeep adds another achievement to its bag of world-wide tricks. More than a stunt, its new job is valuable in spot-

ting freight cars and moving less-than-carload shipments around an Allied base. Riding the jeep, converted from road to rail by changing to steel-flanged wheels, are (left to right): Lt. Col. R. L. Fry, Brig. Gen. C. W. Connell, and Lt. D. Thomas.

radio tubes a month was earmarked for civilians. But the Army loaded manufacturers up with high-priority orders, allowing civilians only 500,000. Now for the fourth quarter, civilians probably will get 1,500,000 monthly, but military orders have been cut back.

• **Trade Survey Credited**—Both Congress and the Administration are keeping an eye on the elections, and WPB is disposed to act before Capitol Hill does. Reports of civilian shortages are now getting some impressive documentation. It was a trade survey, under WPB auspices, that uncovered the crying need for electric irons and had a good deal to do with the decision to put them back in production early next year. OCR's boss, Arthur Whiteside, has enlisted the services of some of the country's top-notch independent market research agencies, and their reports are counted on to weigh heavily with the requirements committee.

While the first electric refrigerator models to come off the lines won't be the chromium-plated beauties of peacetime, they probably won't be stripped of all extra gadgets and conveniences either. Washington has just about had its fill of unsatisfactory Victory models, and is beginning to think that a few extra touches may pay in longer wear and ultimate conservation of materials.

• **Like Auto Ration**—Since initial production of some consumer goods items will scarcely be enough to dent the demand, distribution is going to be the main problem. In some cases, it may be sufficient merely to direct distribution into shortage areas. With washing machines, irons, and refrigerators, what will probably be adopted is a system of certification of need similar to that used for automobiles. Machinery for a consumer goods distribution committee has been set up, but the committee isn't functioning yet.

Labor Priorities

New workers allocated like materials under system set up for trial in Detroit, but the idea has its drawbacks.

It was inevitable, when labor got as tight as materials, that a priority system would be established. A trial manpower allocation plan is being set up at Detroit, somewhat similar to that undertaken in Buffalo (BW—Aug. 14 '43, p. 76) but more completely engineered.

• **How to Rate Plants?**—There are hitches in the idea and in its execution, and complaints are already being heard, but attempts are progressing to correct these before the plan is formally established. One main difficulty is the method of rating plants to establish their claims on available labor.

This likely will be done through consultation by the services (which will tell how badly they need the products made), by WPB (which will report on materials availability), by the War Manpower Commission (on hand to survey present utilization of labor and hiring practices), and by the company itself.

• **Three Categories**—The company will bear the burden of proof, applying for high labor priorities and justifying them at the same time. As set up today, planning then calls for WMC's classifying the company in one of three categories: essential war work, essential non-war work, and nonessential.

Each category would be subdivided as to the labor situation; that is, emergency; experiencing critical production loss; expecting near future production loss; meeting production schedule.

• **Problem in Allocation**—The U. S. Employment Service will funnel job ap-

licants to the companies on the basis of the priorities thus established. And USES will control these applicants in accordance with terms of the new draft regulations intended to drive draft-age men into essential occupations under threat of induction (BW—Aug. 21 '43, p14).

One problem USES faces is allocating available men without handing them all to the top company on the list. Manpower supplies in many job categories are thin today. If six available toolmakers, for instance, were sent to the XYZ Tool Co., which needed ten, the system would be a real blow to the ABC Tool Co., next in line and urgently requiring three similar craftsmen. So men, like materials, will be spread around.

• **Cheers and Squawks**—The plan is meeting a mixed reception in Detroit. Companies with top priorities because of their products, their present manpower utilization, and their hiring practices are all out in praise. But twice as many others, farther down the list, complain loudly. Their protests rise to a bellow when men come to their gates, are interviewed and sent to USES for availability proofs, then guided to more pressing jobs. The men don't have to take those places in higher rated factories, for the system isn't a draft, but exposure is apt to mean acceptance.

The government has problems, too. One of the earliest, with the plan still in trial stages, is exaggeration of manpower needs. A company requiring five grinding machine operators will report it needs ten, for instance, hoping thus to get its quota. The only way to beat such ballooning is to check every detail of every application, and WMC is appealing for honest reports to simplify the job and make it more workable.

A Crop Is Saved

Swift action in recruiting labor saves hundreds of tons of tomatoes piled up on trucks at New Jersey canneries.

Growers and handlers of crops that are both perishable and seasonal have been having their troubles this year, but it is doubtful that a tougher situation has been faced anywhere than that brought about by whopping crops of tomatoes in southern New Jersey and adjacent Pennsylvania counties. Canneries last week end were faced by the imminent probability that hundreds of tons would spoil, and only heroic action staved off the worst.

• **Priced by Condition**—The canneries have working agreements to buy many farmers' entire output, with top prices paid for those delivered in first-class condition. This means an annual rush to their plants once the picking season starts. Even in normal years—when itinerant and part-time workers are available—a certain amount of the crop spoils before it can be handled by the canners.

With growers induced to plant 25% more tomatoes than usual because of the increased demand for military and lend-lease consumption, the canneries did their best to recruit labor, and if things had worked out right, they might have been able to do the job. What they didn't bargain for, however, was the extra heavy spring rainfall—May's was the heaviest in ten years—which caused the crop to mature two weeks earlier than usual.

• **The Trucks Pile Up**—Take the situation at Campbell Soup's Camden plant,

largest in the area. During past peak periods, lines of trucks awaiting unloading sometimes became a mile long, but in the recent rush it was never thus small. The queue of vehicles, carrying loads averaging four tons, at one time numbered 727 by actual count with the end of the line five miles from the plant gates. In addition, 100 boxcars stood on sidings waiting to be relieved of their cargoes.

Appeals to the U. S. Employment Service and War Manpower Commission brought a sprinkling of workers, but the company estimated 1,500 more were needed in a hurry. Soldiers from Fort Dix, sailors from the Philadelphia Navy Yard, and Coast Guardsmen from nearby posts were given permission to spend leaves and off-duty hours in the canneries, thereby increasing their income on the best wages ever paid by the companies, 66¢ an hour for men over 21, with bonuses bringing the rate up to 90¢. U. S. Marines and French and English sailors also pitched in.

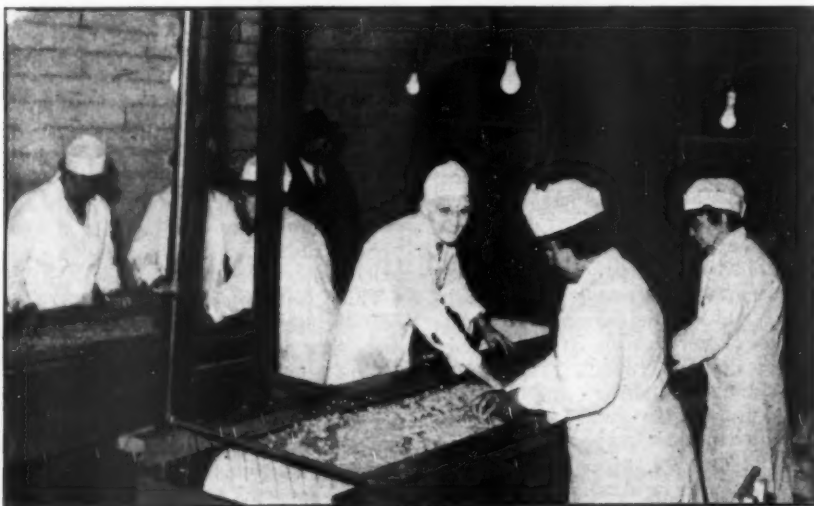
• **Desperate Appeal**—When this help proved insufficient, Campbell bought newspaper space and radio time to ask workers in other plants to give up their off hours and week ends as a patriotic duty, and Gov. Charles Edison proclaimed a food emergency in the state. Civilian defense volunteers visited various offices, and Camden authorities asked everyone capable of handling 35-lb. baskets for even a couple of hours to get on the job.

Response was so great to the appeal for week-end workers—it included 400 employees of R. M. Hollingshead Co. alone—that it was found unnecessary to utilize immediately the whole 1,000 Fort Dix soldiers the Army made available on Saturday after WMC notification that their help was imperative. Soldiers previously given furloughs for this purpose stayed on the job, however.

• **Terms for Soldiers**—War Dept. instructions regarding the use of the 1,000 soldiers said they could be employed for ten days, based on a 72-hour leave period, with the expiring leaves to be renewed or the men replaced. Arrangements were made whereby the Quartermaster Depot in Philadelphia supplied cots and bedding for the men at Camden Convention Hall and for meals to be served in Campbell's employees' cafeteria. The order also stated the soldiers were to be paid the prevailing wage for whatever job they performed.

The situation was further relieved by farmers' shipping their crops to other canning centers as far west as Chicago. Lancaster County, Pa., which has shipped its entire output to Camden for the past eight years, reported that 29 of the 46 cars loaded there one day were diverted to western plants.

• **Temperature Helps**—Farmers had the benefit of excellent weather conditions, too. During the peak, the temperature



As in New Jersey and Maryland, salvation of the chief crop—sweet corn—of Fairmont, Minn., fell on the shoulders of volunteers. All the 7,000

residents turned out, bankers and laborers toiling side by side in the fields, their wives in processing rooms of the local Birdseye freezing plant.

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STEEL—In Ryerson Stock *for Immediate Shipment*

Pictured above are steel stocks in one of the ten Ryerson plants. Ready for immediate shipment are thousands of kinds, shapes, and sizes of steel to fill the requirements of war industries and the manufacturers of essential civilian goods.

Rush orders, equipment breakdowns as well as the normal demand for small lots of steel make it highly important to have a source ready with the right steel to meet all emergencies.

The ten Ryerson Steel-Service plants are geared for just this operation. The steel carried in Ryerson stock makes it practical for manufacturers to reduce high inventories—eliminate idle steel and make every ton work for victory. Call your nearest Ryerson plant when you need steel.

JOSEPH T. RYERSON & SON, INC.

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Cleveland, Buffalo, Boston, Philadelphia, Jersey City

RYERSON STEEL—SERVICE

VITAMIN A

NATURAL OR SYNTHETIC?

A NATIONAL MAGAZINE was in error in stating that the best-known vitamins are produced by chemical synthesis. Vitamin A, the first of them all, is produced entirely from natural sources. Vitamin E also is produced from natural sources at a cost which compares more than favorably with the synthetic variety.

Why Natural Concentrates of Vitamin A?

In our distilled Vitamin A *Ester* Concentrates we have combined the proved biological potency of the natural material with the uniformity, purity and high concentration of a synthetic chemical.

Ester-Vitamin A is a unique product distilled from a variety of marine oils gathered from all parts of the world. Production is not dependent on rationed chemicals or war priorities. It is *always* available.

Prepared by our unique process of high vacuum molecular distillation, DPI's Natural *Ester* Concentrate of Vitamin A combines the potency, blandness and uniformity expected of a synthetic with the stability which comes from concentrating with the Vitamin A the natural protective agents of the original fish oil. If you want the best Vitamin A obtainable, contact us at once.

In view of transportation conditions and other wartime factors, it might be prudent to order a sufficient supply of Distilled Vitamin A Esters* to build up a reserve against the time when your production calls for immediate additional quantities. We sell on long term contract, with deliveries as desired, so that supplies are assured.

*Protected by U. S. product patent No. 2,205,925 and more than 50 process patents.

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Jointly owned by EASTMAN KODAK CO. and GENERAL MILLS, INC.

Sales Agent:

Special Commodities Division, General Mills, Inc.

Minneapolis, Minnesota

"Oil-Soluble-Vitamin Headquarters"



Sailors at Campbell Soup in Camden, N. J., soldiers at a Maryland bean canery—task forces which help bridge labor shortage and save bumper crop.



in the Camden area held within a few degrees of all-time low records, as contrasted with normal high August thermometer readings which would have meant considerable spoilage.

The Francis C. Stokes Co., Vincentown, N. J., which produces tomato juice exclusively, had less trouble than most others in the area. Stokes formerly had a plant at Sanford, Fla., where celery is the chief crop, and knew many workers usually are idle from March until October. Francis Stokes, youthful head of the firm, got in touch with old foreman, Ernest Coleman, who gallantly can take workers wherever pleases. He brought over 100 Negroes to live at Vincentown in emergency homes. They were not needed right away, however, so Stokes lent them farmers in the vicinity for harvest work. When the tomato canning season opened, he recalled them.

BERRIES PAID OFF

Eastern Tennessee farmers pitched this summer to ease the nation's fruit shortage and incidentally to pad the bank accounts. Whole families turned out to harvest what is believed to have been a record crop of blackberries about 6,000,000 lb.—needed because

Glimpses into the wonder world of tomorrow



"Put my groceries in that blue helicopter"

The new clerk at the village market will soon learn that Mrs. Kimball's helicopter is blue—and that Mrs. Brown's is the bright red job. Almost all the shopping housewives make use of the plane-parking lot across from the market.

It is interesting to think about this town—Anyplace, U.S.A.—after the war. And helicopters aren't the half of it.

There'll be new kinds of stores, amazing new products on the shelves . . . and new, more efficient packages for the products.

What about you? No doubt *your* product will be improved after the war. No doubt you are anticipating improvements in merchandising—as well as keener competition. It is wise also to start thinking about package improvements.

The packaging knowledge we have gained during eighteen peacetime years of research and development is now being amplified in the solving of many wartime packaging problems. This accumulation of experience will serve well in post-war packaging and merchandising in

which, we firmly believe, Du Pont Cellophane will play a vital part.

NOTE

We should like to keep you informed of developments as they occur, and will gladly place your name on our mailing list for periodic packaging bulletins.

Write E. I. du Pont de Nemours & Co. (Inc.), Cellophane Division, Wilmington, Delaware.



Cellophane

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

Business Week • August 28, 1943

Industrial Chicago's Choice

The Finnell Combination Scrubber is used for more than 75% of the mechanical wet scrubbing in the Chicago area—a choice evidenced also in other war-busy centers throughout the nation. And a most logical choice it is, considering today's critical man-power shortage. This scrubber-rinser-drier reduces to one-tenth and more the man-hour time required to provide clean, sanitary floors—so essential to worker safety and health.

The Finnell illustrated below has a cleaning capacity of 8,750 sq. ft. of floor per hour... and there's a self-powered model with an even greater capacity, designed for use in vast-area war plants where there are miles of floors to be cleaned.

For free floor survey, consultation, or literature, phone or write nearest Finnell branch or Finnell System, Inc., 3808 East Street, Elkhart, Indiana.

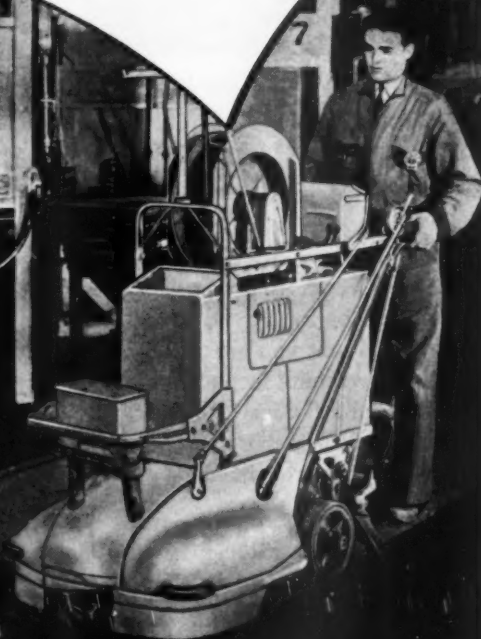
BUILD FOR
TOMORROW
★ ★ Buy ★ ★
WAR BONDS
TODAY

THE Finnell COMBINATION SCRUBBER

FINNELL SYSTEM, INC.

Pioneers and Specialists in
FLOOR-MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES
IN ALL
PRINCIPAL
CITIES



many peaches, apples, and strawberries were caught in late winter freezes.

Quick-freeze companies, with the cooperation of the University of Tennessee Extension Service, organized the berry-picking expeditions and arranged with general stores in the hills to serve as pickup stations. Storekeepers were paid 8¢ a pound on the understanding that they pay the pickers 7¢.

Although never before organized so intensively, the harvest went off efficiently. Pickup trucks followed routes on schedule so that the berry-pickers could time their returns to the stores and storekeepers could turn over the berries to the collector with a minimum of delay. In that way the quick-freeze plants got the berries quickly. The Frozen Products Corp. of Knoxville bought, froze, and shipped 1,000,000 lb.

In Grainger County, where organization centered around the 4-H clubs, 6,500 checks aggregating more than \$16,000 were distributed. Some families received as much as \$200.

Air-Raid Answers

American Bar Assn. tries listing rights and liabilities of property owners and winds up with a 242-page manual.

Can the owner or occupant of a building legally refuse to admit any persons ordered off the street by authorities, even during an actual air raid? Boston's corporation counsel says he can.

But in New York, certain buildings in congested areas have been designated as aid-raid shelters by authorities. Methods have been prescribed, too, for them

JUST IN CASE

Flour millers won't be caught napping if serious grain shortages arise to threaten supplies of white bread. During the World War and for some months thereafter, various mixes of Victory flour appeared, some containing 80% wheat and 20% barley, others containing milo, corn, kaffir, and various grain sorghums.

Present supplies of wheat are far in excess of needs for civilian, military, and lend-lease flour, but industrial alcohol and livestock feeding are taking so much that millers aren't taking a chance. Several millers in Kansas, Oklahoma, and Texas have been running experimental grinding tests of kaffir, milo, barley, and other grain mixtures with wheat—just in case.

use and the handling of crowds therein by volunteers, not by the owner or occupant.

• **And Who Pays?**—Has the city assumed any liability in this respect? Will the owner's public liability insurance protect him in case of any injuries that might arise out of a panic while the property is in use as a shelter with his express or implied assent? Also, what about the public-spirited owner who has established a shelter on his premises and voluntarily invited people to use it?

Must the government, too, compensate owners in case of any temporary use made of the shelters on their premises? Or grant compensation to owners of a garage or parking lot if blackout regulations require them to accommodate without charge any cars driven in after an air-raid alarm?

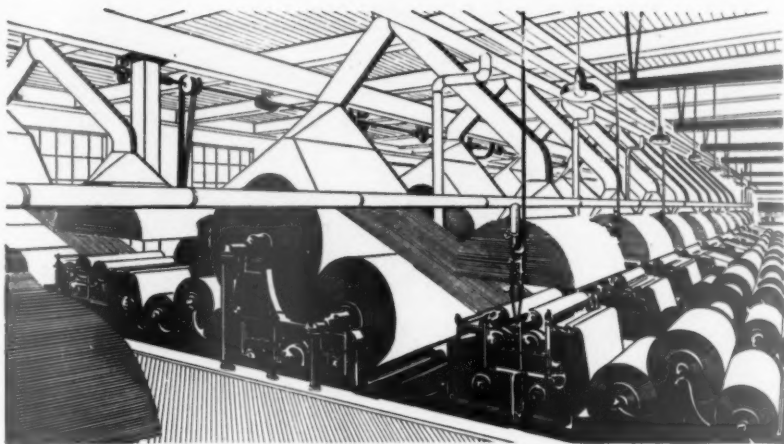
• **A Few Jawbreakers**—The possibility of all these fine legal messes affecting the business man, plus a number of others, is discussed at length in the newly issued 242-page manual on Legal Aspects of Civilian Defense, an American Bar Assn. job done for the Office of Civilian Defense. It's chock-full of such obstacles as ultra vires, ex delicto, ex contractu, mutatis mutandis, fortiori, and asportation. Nevertheless, it's informative reading, even for those who have scarcely a nodding acquaintance with Blackstone.

The manual points out that it isn't enough for the property owner to order his employees to obey blackout regulations and then simply forget about it. One New York owner found this out when his superintendent in a blackout neglected to turn off all lights. In California, an electric sign owner got it in the neck when it was discovered, during a blackout, that the electrician specifically hired for the job hadn't properly disconnected the sign.

• **Confusion in Laws**—Much of the legal confusion discussed appears to be caused by lack of any uniform state laws on the matter of civilian defense. In New York, for example, willful or nonwillful violation of blackout regulations is a misdemeanor and only punishable by a fine or a few days in the cooler. In Mississippi the same offense is a felony; you can be handed up to two years in the state penitentiary.

Volunteers have wider powers in various places, too. In Washington, D. C., a warden can actually use "such force as is necessary" to enter structures to correct blackout violations, whereas in New York orders given by wardens are enforceable only by the police.

• **Defense Officials Protected**—Much agility has been shown by authorities in evading final responsibility for the acts of civilian defense volunteers. The OCD has officially stated that volunteers are not appointees or employees of the United States government. Many states have passed laws providing that neither



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FIND A MATERIAL that your maintenance men recommend, and you can be sure that it won't cost you very much for upkeep. Wolmanized Lumber* is that kind of material. It doesn't need much attention, even on the toughest jobs, because it is able to resist decay and termite attack.

TEXTILE MILLS use a lot of Wolmanized Lumber. It is easy to erect in the first place—goes up fast, just like any other wood construction. It provides the resilience so necessary in mill buildings. And it stays up, even though exposed to high humidities and temperatures, conditions that foster decay.

WOLMANIZED LUMBER is ordinary wood made resistant to decay and termite attack by vacuum-pressure impregnation with Wolman Salts* preservative. "Fibre fixation" prevents leaching-out of the preservative. This lumber offers all of the usual advantages of wood—high insulating value, light weight, low cost. It is clean, odorless and it can be painted.

WAR CONSTRUCTION is taking most of the Wolmanized Lumber produced. Whether for housing personnel or equipment, or for manufacturing plants, wood is speeding completion of these buildings. Wolmanized Lumber assures them of long life. It will do the same for your peacetime construction. American Lumber & Treating Company, 1636 McCormick Building, Chicago, Ill.

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FEARLESS

BUD—just a clean, wholesome, fearless American boy... and his dog... thinking about tomorrow's ball game, about batting in clean-up position, about what he'll do to that Bearcat's pitcher. He knows there's a war going on. Sure he does. His brother Bill told him about it... Bill, who's over there helping to win it... and when his country needs Bud, he too, will do his part fearlessly.

Young America! Fun-loving, hard-playing youngsters. There could be no America without them. Today, they're developing keen, alert minds and strong, active bodies; tomorrow, they'll be guiding the Nation's destiny. They'll be running America's railroads, bridging the gap between producer and consumer; between where you are and where you want to go.

When Bud and his generation take over, ROCK ISLAND LINES will be an even greater railroad than it is today. Our Program of Planned Progress assures that. For, despite shortages of man-power and materials; and although, with the other railroads, we are doing for Uncle Sam a most profoundly important job, we are constantly building for the future... for America... for that America which one day we want Bud and his pals to inherit.

As yesterday—and today—so tomorrow ROCK ISLAND'S sole purpose is to provide the finest in transportation.

KEEP AMERICA FEARLESS • BUY WAR BONDS

ROCK ISLAND LINES



ONE OF AMERICA'S RAILROADS • ALL UNITED FOR VICTORY

28 • General News

the state, any municipality thereof, nor volunteers in good faith carrying out necessary civilian defense orders can be held liable to actions in the civil courts. The Massachusetts law granting this immunity carries a provision stating the immunity is to continue even if the law is later declared unconstitutional.

Consequently, as the manual points out, it might be difficult to find out just who should be sued if, for example, an air raid warden wantonly damaged the realty or person of a householder during a raid; blunders of auxiliary firemen caused a house to burn down; an auxiliary policeman arrested an innocent pedestrian; or inept first-aid work by volunteers aggravated injuries received in an air raid.

• **Potential Worries**—Other answers on knotty problems: If your plant had to be blown up to check a spreading fire caused by a raid, you would probably be just out of luck since the courts have long held that safety of the public in the face of imminent disaster overrides all consideration of personal loss. Recovery for mob damage would be another tough question to decide; some state laws hold municipalities liable for this, but there are a number of hedging provisions.



McNUTT'S TWO EARS

War Manpower Commission's chief, Paul V. McNutt, poses at his Washington desk with virtually the entire pack of quick-frozen corn on the cob. Normally the total would snow him under, but this year the program is different. Instead of freezing cob and all, processors are cutting off the kernels to save container and transportation space. McNutt's two ears are a civic gift from Fairmont, Minn., freezing center currently engaged in a seven-weeks' county-wide drive to harvest and pack a thumping bumper crop of sweet corn.

Business Week • August 28, 1943

Milk Pinch Grows

Several regions of acute shortage face controls; WFA prefers allocation to any plan involving points and stamps.

The War Food Administration now is face to face with the necessity of invoking control over milk distribution in certain regions. Even though production in the first half of 1943 about duplicated the same 1942 period, consumption in specific areas rose as much as 10% to 35%. Moreover, manufacture of products from fluid milk rose during the half year.

• **Probability Long Realized**—Thus a situation whose imminence has been recognized for some time has materialized. WFA has delayed as long as it could because it didn't want the job of telling people they couldn't have as much of this highly nutritious food as they wanted. Moreover, there is the problem of protecting supplies for babies, children, and invalids.

Basic reason why milk production has not kept step with demand, dairymen declare, is that it is more profitable to feed corn to hogs than to sell it in feed-importing dairy regions such as the Northeast. WFA men have warned for over a year that they couldn't guarantee milk production unless something was done about feed. They suggest:

(1) A rise of 1¢ in the price of fluid milk and adjustments for certain dairy products (a course that is unpopular with those who are trying to get the cost of living back to the level of Sept. 15, 1942).

(2) A seasonal pricing formula which would allow increases during the winter months when there is less pasturing, more feeding.

(3) Subsidies for fluid milk and other dairy products (such as those now being paid on butter and cheese).

• **Import Canadian Grain?**—The third plan at present gets the most favorable response. There is talk of a fund of \$100,000,000 for distribution to milk producers and agitation for importation of more feed wheat from Canada to help pad out the supply of corn.

Thus far, the shortage of fluid milk—if not of other dairy products—has been largely relative. People have been able to get as much as they are accustomed to using, but rising consumer incomes have increased over-all demand. But now the pinch is becoming real, as indicated by the decline in production of about 7% (800,000,000 lb.) from June to July.

• **The Danger Spots**—Most of the milk shortage areas spotted thus far are in the South. These now are boarding large concentrations of troops, and they need even more milk than the amounts

HOW MUCH DOES IT COST TO *Fold* A STATEMENT?

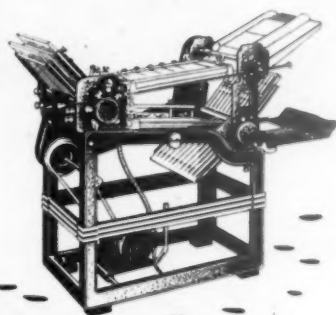


In a certain bank, it used to take 10 girls 5½ hours to fold the monthly statements. Today, with a Davidson* Folding Machine, *one* girl does the job in 5½ hours. The machine has already paid for itself, and will continue to earn dividends for years. This is but one of many institutions and industries that have discovered the efficiency and economy of Davidson Folding Machines for folding statements, advertising literature, form letters, etc.

Davidson Folding Machines embody an entirely new principle which permits greatly increased speed and accuracy. They're made in four models to handle any job from a simple letter fold to a complicated four-way fold. Equipped with automatic feeders, they're easy to operate, simple to adjust, economical to run, and require very little floor space.

Write for FREE book

It gives the complete story... illustrates and describes the various models of Davidson Folding Machines, and shows the many types of folds each will make. Write for your FREE copy today charge on bill.



IT TAKES MORE THAN FIGHTING MEN TO WIN THIS WAR

Our armed forces are doing a tremendous job... and they're going to win. But they can't do it alone. It's the biggest job any country ever tackled, and it demands the full cooperation of every liv-

ing American. The money you invest in War Bonds and Stamps buys the guns and tanks, ships and planes they must have to insure Victory... and the preservation of your freedom. Don't fail them.

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**DUPLICATORS—FOLDING MACHINES
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"See! . . . I told you! Music right out of the air!"

IN THOSE DAYS YOU DIDN'T CALL IT "Electronics"



. . . but the first portable radio was just as amazing in its time as the electronic wonders that are helping win the war today . . . and will help you win business battles tomorrow! When you need help on electronic applications to your product or process, remember Operadio built the first commercial portable radio, was head-over-heels in engineering and practical manufacturing years before most people even heard the word "electronics!" Operadio has been continuously developing electronic products for other industries. At Operadio it's war work today . . . your electronic problem tomorrow!

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Electronic Specialists

OPERADIO MANUFACTURING COMPANY, ST. CHARLES, ILL.

SYMBOL OF ELECTRONIC Φ EXCELLENCE SINCE 1922

normally shipped in from surplus areas in the North and Midwest. Pacific Coast areas of concentrated war production, as well as feed-deficit regions like the Northeast, are being watched carefully.

War Food Administration men are dead set against nation-wide rationing of fluid milk, and they haven't reached any decisions as to methods of control in the shortage areas. Where necessary, it is hoped that controls may be imposed simply on metropolitan areas and their milksheds—along the regional lines of the Dept. of Agriculture's established milk-marketing agreements.

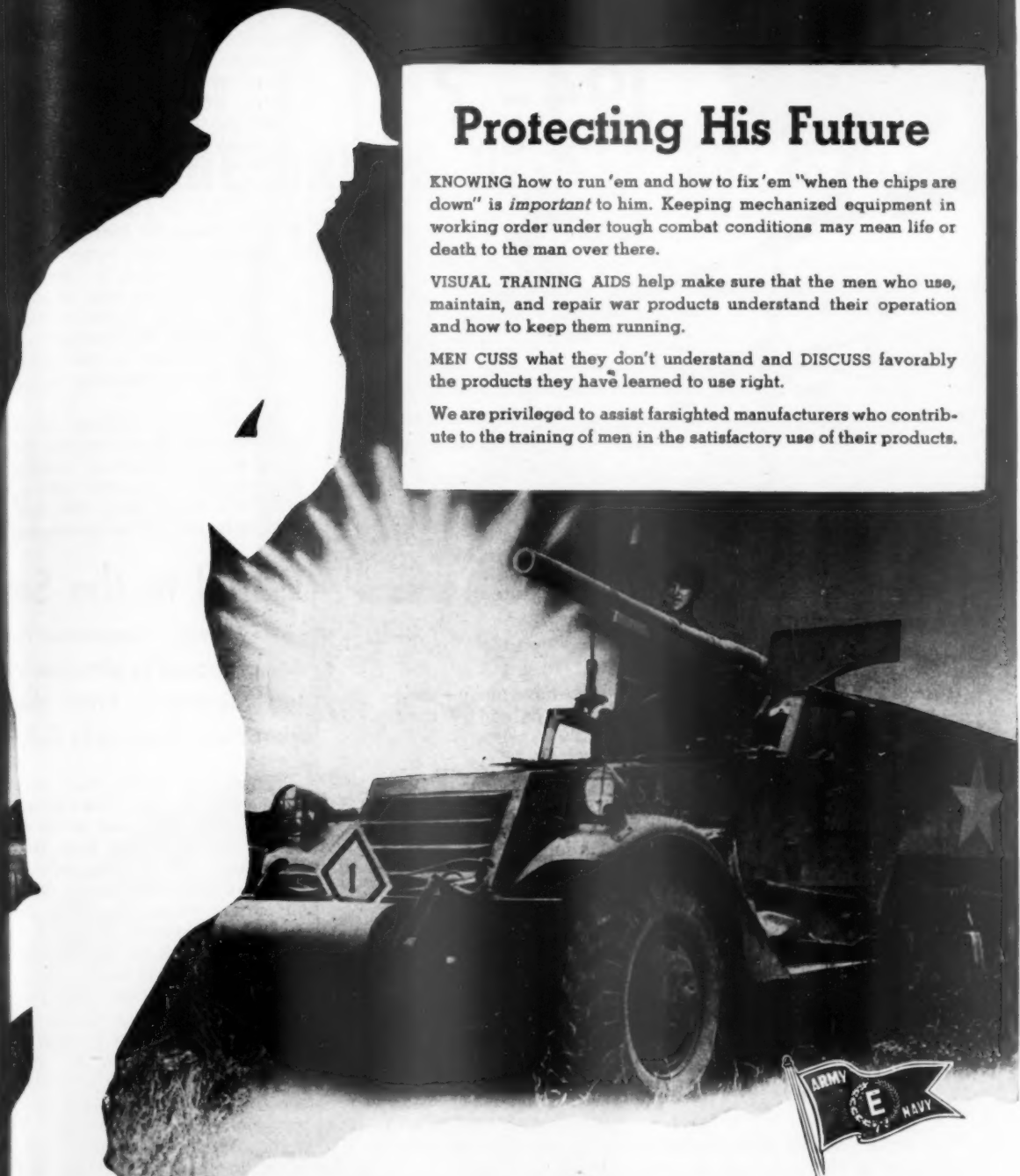
• **Up to Local Dairies**—The preference is for allocation orders for specific areas rather than stamp-and-point rationing. This would mean limiting distributors and handlers to the amount of milk they received during a corresponding month of a chosen base period. Then it would be up to fluid milk distributors



SALVAGED MINUTES

Noted for production shortcuts, the automotive industry continues to introduce plenty more to speed the flow of war goods. Latest is Chevrolet's method of spray-painting aircraft engine crankcase sections. Needed originally was a masking fixture to accommodate all three sections, plus another device (above) to cover upper banks of cylinder portholes. Now sections are assembled first, openings are closed with quick-fitting masks (below), and the paint is sprayed on at a time saving of 56 minutes per unit.





Protecting His Future

KNOWING how to run 'em and how to fix 'em "when the chips are down" is *important* to him. Keeping mechanized equipment in working order under tough combat conditions may mean life or death to the man over there.

VISUAL TRAINING AIDS help make sure that the men who use, maintain, and repair war products understand their operation and how to keep them running.

MEN CUSS what they don't understand and DISCUSS favorably the products they have learned to use right.

We are privileged to assist farsighted manufacturers who contribute to the training of men in the satisfactory use of their products.

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WHICH WAY in 194-?

"194-?" is the year the war will end.

It could still be a long way off. The gains we have made—the victories we've won—may truly be only "the end of the beginning."

But if the day of unconditional surrender could be known, it would be ringed on every business calendar. For *that* day may drastically change the direction of many industries.

The problems you will face then may be far different than those of today. You may want to introduce new lines, redesign products, acquire new equipment. You may want to increase your holdings—or dispose of them. But then, as now, financing must be the mainspring of all successful action, whether in production, distribution, reorganization or expansion.

We have organized a new Commercial Financing division which offers you a sound, well-rounded service—a service that will provide all the working funds you need for today's operations on a basis that will make every dollar productive of profit for you.

That service can be of incalculable help to you also in your planning for the post-war conversion period.

We will gladly supply detailed information on request.

Commercial Credit Company Baltimore

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CAPITAL AND SURPLUS MORE THAN \$65,000,000

Interesting color charts of ARMY, NAVY and MARINE insignia free on request.

—the local dairies—to apportion available supply among their customers. WFA men think the dairies can much better take care of babies, children, and the sick than can any elaborate rationing program.

In addition, it may be necessary to impose further restrictions on dairy products. Sales of cream might be restricted and thus diverted to cheese and butter. Ice cream manufacture, also under controls, might have to be curtailed again. (With estimated demand for ice cream ahead of last year, 1943 production is expected to average 9.3 lb. per capita against 15.2 last year.)

• **More Points for Butter**—Distribution of evaporated milk, butter, and cheese already is controlled by OPA point rationing. The point value of butter was raised from eight to ten at the beginning of August, but further heavy government purchases of this commodity indicate another two-point increase in September.

In addition to rationing, distribution of butter and cheese between the government and civilians is controlled by set-aside orders. Another order requires that 75% of all dried skim milk production be set aside for government use.

Canal to the Sea

Two new deepwater routes are proposed to eliminate winding Mississippi River channels from New Orleans to Gulf.

Before the Civil War, more goods passed through New Orleans than through any other port in the United States. But ever since then, the city's importance to the country's foreign trade has been diminishing. Other major ports have increased their share of the nation's steadily expanding export and import business, but New Orleans has just about held even.

Not the least of the reasons for the decline in importance was the unavailability of the tortuous 115-mile Mississippi River channel for the larger ships engaging in foreign and coastwise trade. For many years, forward-looking New Orleans citizens have been agitating for a straight deepwater outlet to the Gulf of Mexico. Plans have been put forward, surveys have been made, but up to now nothing concrete has ever been done.

• **Hearing Is Held**—But the long hope for canal may be on its way to reality last. Early this month the U. S. Army Corps of Engineers, acting under the authority of a Louisiana-sponsored congressional resolution, held a public hearing in New Orleans' Roosevelt Hotel.

Two possible routes were suggested.

WHEN THE DRUMS OF WAR ARE STILLED

With the coming of Victory will come Victory's products—astonishingly new, amazingly improved. Many of these achievements will emerge—are now emerging—logically and naturally—from one of the world's largest plants devoted exclusively to the manufacture of mechanical rubber goods—from 65 years of history-making invention and advancement and the vast proving ground of current war production. The BWH belting, hose and similar rubber products of tomorrow will out-distance in quality and performance the BWH products that the world accepts as the finest today. And the BWH cooperative program of selling through the industrial distributor will be continued and developed. (Manufacturers with rubber problems are invited to get the help of BWH.)

Boston Woven Hose & Rubber Co. • Cambridge, Mass.

BOSTON WOVEN HOSE
BWH
BUILT WITH HONOR

**Mechanical
RUBBER GOODS**

Insure Victory — Buy More War Bonds & Stamps



at the hearing (map below). The Dock Board of New Orleans proposed the Alexander Seaway, a channel 40 ft. deep and 200 ft. wide connecting with the city's Industrial Canal, which would be constructed on the east side of the river, with a length of approximately 75 miles. Jefferson Parish, consisting of the communities on the west bank, presented the Arrow to the Americas, involving a route of about 42 miles if terminated at Crown Point, where it would connect with the shallow-draft Intracoastal Canal, or 50 miles if continued on to Westwego, where it would connect with the river. Estimates of the dredging cost ran from \$8,000,000 to \$13,000,000.

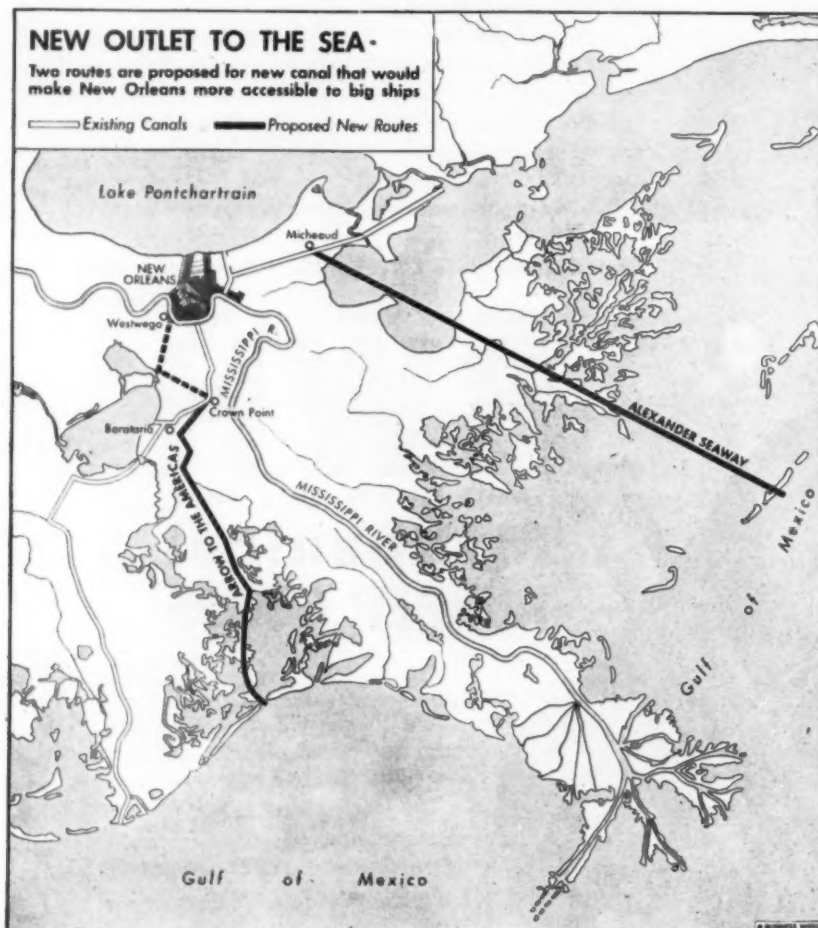
The Engineers Corps has now got its own survey under way and will make its decision on the shortest, cheapest, most practical route.

• **Latin-American Prospects**—Interested in the project is not only the city itself,

but also the entire Mississippi Valley area, in which a good part of the nation's productive capacity—both agricultural and industrial—is concentrated, and for which New Orleans is the natural port. This is particularly true of trade with Latin America, which, thanks to the Administration's good neighbor policy, is expected to provide an increasing proportion of our postwar foreign trade.

One other advantage which may accrue to New Orleans through the canal is the establishment there—probably in Lake Pontchartrain—of the proposed U. S. Naval Base for the Caribbean, a plan which up to now could not even be considered due to the dangers of the river channel. Present routes out of Lake Pontchartrain are now only for shallow-draft boats.

Two major stumbling blocks remain—final approval of the project by the Engineers Corps and the voting of the necessary money by Congress.



Two tentative routes have been suggested for the proposed deepwater canal to connect New Orleans directly with the Gulf of Mexico. The Alexander Seaway would be 75 mi. long, while the Arrow to the Americas would be 42 mi. if terminated at Crown Point, and 50 mi. if continued,

as has been suggested by some proponents, all the way to Westwego (dotted line). The only present channel open to seagoing ships is the tortuous, 115-mi. Mississippi route. The existing canals have a controlling depth of only 9 ft., as compared with 40 ft. planned for the new route.

"Get the Coal!"

That's the sole objective of C. E. Newton, lawyer turned railroader, who runs the mine for the government.

"And we settled that strike without issuing a single damn directive."

Thus Carl Elbridge Newton, deputy coal mines administrator and in his spare time president of the Chesapeake and Ohio railroad, closed the book on the incident of his many-sided government job. He is in there running the mine for Administrator Harold Ickes who has them over under Presidential order in May when production was stopped by the United Mine Workers' strike.

• **6,000 Tons a Day**—While the administrators have no authority in dispute between miners and operators, the slogan is "Get out the coal." Settling that strike got out the coal—over 6,000 tons daily that had been held up by week-old walkout. Involved were 600 miners of an Ohio bituminous company. They struck when the management announced that blasting operations would be switched to a type of explosive with which they were unfamiliar and which for that reason, was more dangerous for them to handle.

Newton's peacemakers found that the company had made the switch because supplies of the original type were being cut off by war requirements. The right things were said to the right people in Washington. They promised to release some of the wanted explosives, and the coal diggers went back to the shafts.

• **Office Kept Small**—This beeline route to results is part of Newton's policy. Seizure of the nation's 3,000 mines could have been made an excuse for recruiting a huge new organization and developing a complicated procedure. Instead, Ickes' regulations of May 19 reduced the legalities of seizure to a simple paper operation. It made the operators of the mines agents of the government and directed them to continue their regular duties. When Newton took over the control job on July 1, he stuck to the simplified routine.

The question of ultimate rights and responsibilities, financial and otherwise, are among the large problems that the courts will have to clarify. In the meantime, the executives who run the mines continue to go through their accustomed motions. When a customer pays for his coal, the check is deposited to the account of the mine company. Money for the payroll is drawn therefrom. The mine boss fires and hires as usual. The company does not have to report any of these matters to Washington.

• **Ready-Made Field Staff**—Nevertheless the operators know that Washington

eyes are continually watching their activities. Check is kept daily through 13 field men. Twelve of these were taken over from the bituminous coal division of the Dept. of the Interior. This division was established to administer the Bituminous Coal Act, a measure designed to stabilize prices and marketing, which expires Aug. 24.

By adopting the twelve field men, Newton acquires an experienced staff, familiar with the companies and conditions in each of the bituminous districts. The thirteenth man was added for the anthracite fields.

• **Daily Reports**—Each day these field men get from the mines in their territory a report on employment, production, trouble if any. The reports are relayed to Newton's office in Washington by teletypewriter. These 13 messages give the deputy administrator a swift picture of how the coal output is coming along, tip off crises before they happen. Usually they run under 300 words each. Some are only a few lines:

"Situation and production normal, absenteeism declining, 75,000 men at work."

Until recently, Newton's Washington headquarters in the new Interior building had perhaps two dozen employees. On Aug. 16, appointment of seven new officers to key posts in the organization was announced. They include four coal men, a lawyer, a publicity man, an accountant. By delegating authority to these assistants, Newton will have more time for higher policy matters.

• **Two Frequent Visitors**—His days are taken up by conferences, emergency phone calls, the study of legal questions. Frequent visitor is Forney Johnson, a Birmingham attorney who speaks for the coal industry. Another is John L. Lewis. Sometimes Newton goes over to Lewis' office.

Most important recent decision to come out of Newton's office is the order making clearer the financial status of the mines (BW—Aug. 21'43, p18). Bankers looked out the window when mine executives sought loans because nobody knew how much of a claim the government might make on assets or earnings (BW—Jul. 10'43, p16). Newton's clarifying order gives the mine management full control over its finances so long as certain protections are conceded to the government (BW—Aug. 21'43, p18).

• **Fair but Firm**—Ickes backed up Newton in putting over this order against the opposition of some government officials who thought the terms too easy on the operators. Newton fought it through because he considered it fair. In a recent statement to mine owners, he showed that he can be plenty hard-boiled when the occasion demands. After promising to return the mines, he said:

"I have received dozens of telegrams from mine operators urging immediate advance of federal funds and threaten-

ALL 3 NOW FIGHT WIN PLAN

to be ready
WHEN THE
SHOOTING
STOPS

This message is especially for **INDUSTRIAL EXECUTIVES** who are very busy producing war goods.

★ WE OFFER ★
TO RESPONSIBLE PEOPLE

INGENUITY

along with extensive facilities for bettering anything made from metal...large or small Parts... Complete Assemblies...experimental pieces or mass production.

AFTER VICTORY

The genius that America contributes in the all-out Fight to Win can also (and at the same time) do a third thing: Plan, in a practical way, for the peace.

In our own small way we at Spriesch have been planning to help other manufacturers, After Victory. The Spriesch organization is not just another miracle war plant. Long before Pearl Harbor, we were said to be performing miracles, in the manufacture of bomb-releasing mechanisms for fighting aircraft.

Right NOW we seek contact with those to whom "All 3 at the same time" is feasible. They will like to consider using part or all of our facilities for "bettering anything made from metal" such as:

Combined engineering-dies-tools-parts or complete assemblies service...Designing and making Special Machines...Initial, periodic or continuous recommendation for product improvement or production procedure...Help on What to make After Victory. Distance will present no insurmountable barriers to rendering these services.

Industrial Executives are invited to write NOW (on business letterhead please) for our newly printed booklet, "After the Shooting Stops" and for our 36-page plastic bound brochure titled "Ingenuity." The latter illustrates and describes our extensive facilities. Frankly, we think you'll be pleased.

Joseph J. Cheney, President.



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**.. WE LANDED
 WITH THEM**

More than in spirit, we at KIRSTEN are "landing" with our nation's invasion forces... for we have supplied, from our foundry and machine shops, the precision machined brass parts used in steering gear on the LCI (Landing Craft Infantry)... in the capstan windlasses on the LST (Landing Ship Tanks). These landing barges are used by the hundreds in our successful invasions... we are proud that, for the duration, the makers of your KIRSTEN pipe are entirely devoted to this important war production.

KIRSTEN PIPE COMPANY
 Seattle 1, Washington



ing to shut down their mines unless these funds are forthcoming. . . . To date, the coal mines administration has not advanced one dollar to any operator. . . . Gentlemen, don't think that the government is going to give you the taxpayers' money to risk in your business instead of risking your own. If Uncle Sam should open wide his purse to the coal industry, then the coal industry would wake up some day and find out that it was in hock up to its neck to Uncle Sam."

• **Lawyer of Distinction**—The admonition was delivered with the biting emphasis of a man skilled in dazzling juries, swaying judges, overwhelming witnesses. For Carl Elbridge Newton was a lawyer with a distinguished record before he went into railroading.

Because of this background, Ickes made a shrewd choice when he picked him for his deputy coal mine administrator. As president of the biggest carrier of bituminous, Newton is familiar with the coal industry and its personalities; as a skilled corporation lawyer, he can keep at a minimum the legal hazards which the government may encounter from taking over control of the mines.

• **Dartmouth and Oxford**—Newton was born 45 years ago in Somerville, Mass. At Dartmouth, he mystified fellow students with sleight-of-hand which he still performs with the assurance of a professional. He won a Rhodes scholarship to Oxford, topped it off by becoming a barrister of the Inner Temple, London. Later, at Harvard, he specialized in administrative law.

Newton began the practice of law in New York, was appointed an assistant U. S. attorney, became a hard-hitting prosecutor of political hoodlars. He convicted and jailed President Harding's alien property custodian, Thomas W. Miller, in a \$6,500,000 fraud. Later, returning to private practice, he became an authority on tax, antitrust, reorganization cases. In April of last year he went on the board of C.&O., in December became president.

• **Spare-Time President**—"I'm working full time for the government," Newton remarks, "but I am still president of the C.&O. I run it on my own time."

He does exactly that. Officials of the railroad come to Washington and infest his rooms at the Carlton Hotel after he leaves the Interior building, sometimes keep him up till 4 a.m. Every Saturday night he starts from Washington to his railroad headquarters in Cleveland. There are two male secretaries along. Nobody gets much sleep. In Cleveland he puts in a twelve-hour day at his office, with subordinates. Sunday night he returns to Washington.

• **Matter of Salary**—Though it gets but one full day of its president's time out of a week, the C.&O. pays him his usual salary less the amount he receives in his government job.

Ingenious Display

Window trimmers, snagged by shortages, are still getting by with ersatz and conservation of old materials.

Display windows of retail stores throughout America are visibly affected by the war, but the display men are doing their bit on both home and battle fronts. Their experience is being employed effectively for front-line camouflage work. On the home front, they are working overtime to promote recruiting and the sale of war bonds and stamps.

• **Shortage Encountered**—This calls for much improvisation, for war has created a shortage of many of the materials the display men work with. Critical shortages of rubber and metal were felt early. No display fixtures are being made of rubber. This critical product was used extensively in the lamination of hands for papier-mâché mannequins. Now it has yielded to plastics.

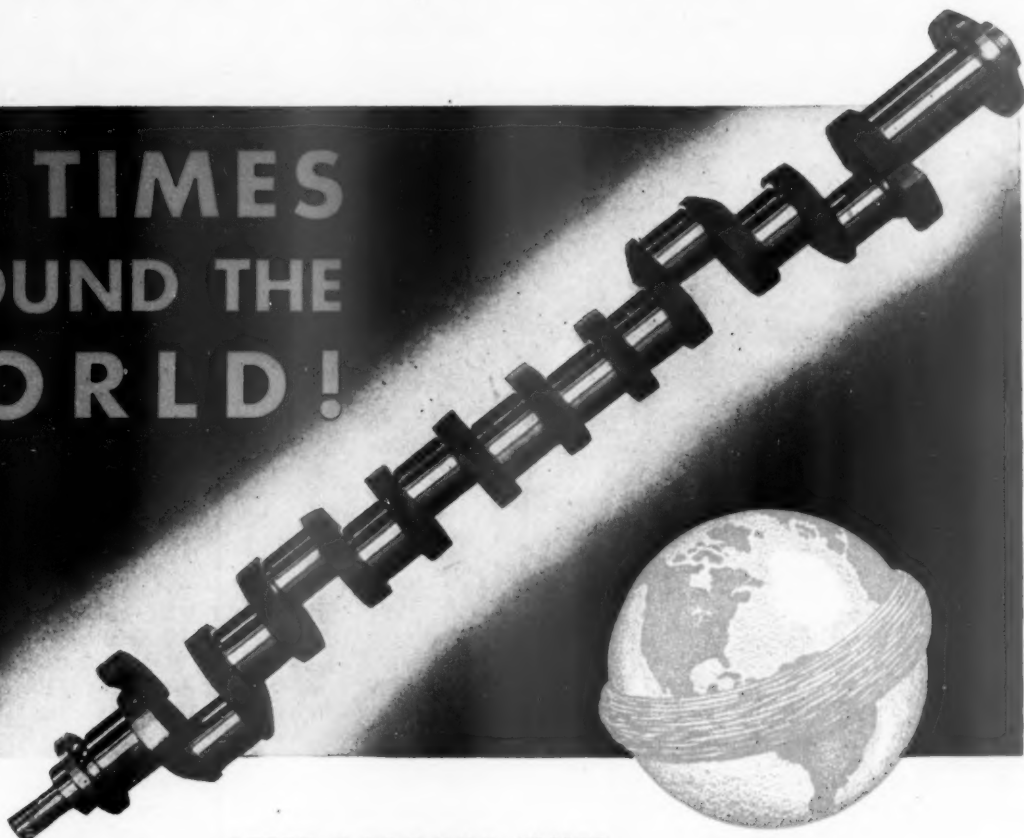
Metal fixtures are also out. Some wooden fixtures are being manufactured, but lumber is also scarce, and so the trend is to paper for display sculpture. Difficulties even in that field portend, however, for WPB has placed a ban on the making of artificial flowers for the display trade and recently slashed by one-third the amount of paper and paperboard available for interior and window displays.

• **Plaster Can Be Used**—Mannequins and fixtures can be made of plaster, but



Carl Elbridge Newton operates government-seized coal mines with the railroad precision that he demands as president of the Chesapeake & Ohio and with the sense of legal justice that he developed both as a private and as a federal attorney.

40 TIMES
AROUND THE
WORLD!



AFTER 1,000,000 MILES

TOCCO-HARDENED CRANKSHAFT SHOWS ONLY 1/1000-INCH WEAR!

ONLY 1/1000-inch wear on the crankpins after piling up a service of 1,000,000 miles . . . a distance equal to 40 times around the world! That's the record of one veteran TOCCO-hardened crankshaft on one of the country's fastest streamliner trains. Hundreds of thousands of other TOCCO-hardened crankshafts are giving similar performance . . . giving 5 to 10 times normal life . . . avoiding delays for engine overhauls . . . keeping engines of the United Nations on the straight path to Victory.

TOCCO-hardened crankshafts are used by the firms listed.

Investigate TOCCO for improved and faster hardening, annealing, brazing and heating.

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Cleveland, Ohio

**THESE ENGINE BUILDERS
USE TOCCO-HARDENED
CRANKSHAFTS**

Caterpillar Tractor Company

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General Motors Corporation

Seven divisions making trucks and diesel engines.

Hercules Motor Corp.

International Harvester Co.

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and many others.

**HARDENING
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forming and forging**



TOCCO

JUST PUSH A BUTTON

World's Fastest, Most Accurate Heat-Treating Process



In the early days, this was the peak of streamlining.

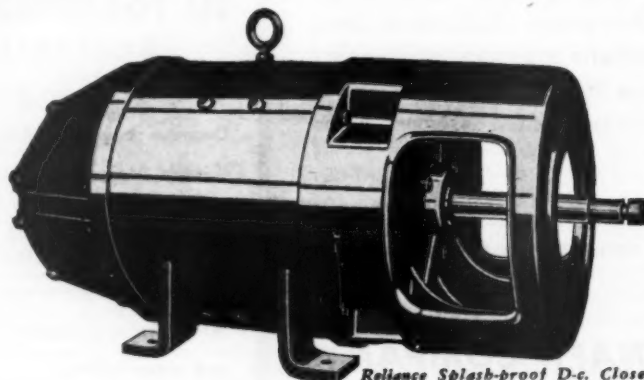
STREAMLINING!



Streamlining adds more than beauty. For years, Reliance engineers have pioneered in streamlining electric motor-drives—for utility and efficiency.

Among recent developments are axial-flow fan motors, close-coupled pump motors, V*S Drive for machine tools. These and other Reliance Motors are being used in many highly efficient installations where space is limited . . . where flexibility of power control and ease of operation are essential . . . where safety is a prime factor . . . and trim appearance desirable.

For further advantages of streamlined motor-drive and practical design suggestions, call in a Reliance man.



Reliance Splash-proof D.C. Close-coupled Pump Motor. Pump is mounted right on the motor shaft—eliminates misalignment, saves space; fewer parts, less maintenance.

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not in any appreciable size without lap and wood frames, also scarce articles. Shipping presents a serious problem when packing boxes, crates, and excelsior are scarce and expensive.

WPB restrictions on the use of wood hamper the display men. Metal fittings for mannequins, used to connect arms at elbow and shoulder, are unobtainable and wooden fittings are taking their place. Quick-drying lacquers, used extensively in display work, are becoming harder to get, and the sign department of stores are worried by the scarcity of camel hair brushes.

● **Plywood Gone to War**—Metal standards are no longer being produced, and wood is being substituted. One of the severest blows felt by the display business was the cutting off of their supply of plywood, used for panels, cutouts, and other decorative effects.

Out for the duration are the animated elephants, soldiers, musicians, and other mechanically controlled figures, which have attracted crowds to store windows. Old King Cole, Inc., of Canton, Ohio, regarded as the largest producer of animated displays, has gone completely into war work. Tropical palms are not being imported to any extent any more.

● **"Best Friend" Guarded**—The staple gun, the display man's best friend, is being cared for tenderly for fear new ones will be hard to get. The same is true of metal staples, which are becoming increasingly difficult to obtain because of metal shortages and huge government orders for heavier staples for airplane manufacture, wallboard application in Army camps, and other military uses. Metallic papers for Christmas decorations are out, and it is unlikely that any more cellophane will be available.

Conservation has become the watchword. Since it is uncertain when new products will be available, more attention is being paid to the maintenance of supplies on hand. Fixtures are being handled more carefully, are getting the soap-and-water treatment more often, are given more protection from dust and smoke, and are carefully packed away when not in use. Large city stores which used to dispose of their old window displays to small stores for a song now are saving the backgrounds, cutouts, and other decorative effects for re-use.

● **The Feminine Touch**—The manpower shortage has had telling effect. The display profession has been dominated by men, but many stores are employing women to replace the men who have gone into the armed forces and essential war industries. The women are working out satisfactorily in many instances, for they are putting a feminine touch into displays.

The manpower shortage also has hit the manufacturers. Orders for mannequins and other fixtures are now from three to six months late in delivery.

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Business Week Reports to Executives On:

THE LIGHT METALS

—A Wartime Reconnaissance
Of Their Postwar Position

Looking down on a retort furnace used in the ferrosilicon magnesium process, a technical achievement of the war.

To arm the skies with the greatest war fleet of all time, the aluminum capacity of the United States has been multiplied seven times since 1939; magnesium capacity, 70 times.

Planners of future prosperity have begun to worry about what to do with such abnormal tonnages of the light metals. Today, every pound is earmarked for a military purpose or for some essential civilian use. After the war, "nonessential" civilian applications will have to make a new beginning, from a midwar ceiling of zero.

Compared with our wartime steel capacity exceeding 90,000,000 tons a year, the goals of 1,000,000-plus tons of aluminum and 265,000-plus tons of magnesium may appear insignificant. But look at light metals from the standpoint of available raw materials, and their proportions begin to magnify. The potential supplies of both aluminum and magnesium are so nearly unlimited that they challenge the imagination.

Furthermore, volume comparisons are more favorable to the light metals than are tonnage figures. Multiply aluminum tons by three and magnesium tons by four to compare, in volume, with a given tonnage of steel.

On existing evidence, aluminum and magnesium together do not figure to replace steel as the basic metal of industry. At the same time, the light metal producers confidently expect that their production curve, perhaps after a brief setback immediately following the war, will continue its upward trend to achieve second place, after steel, in a postwar world that seems sure to make increasing use of all metals as well as of the chemically produced raw materials such as synthetic rubber, plastics, nylon, and others still incubating in wartime test tubes.

This report on the job, the methods, the markets, the problems, and the organization of the light metals industries—one of a series of Business Week Reports to Executives on the general subject of postwar planning—is an effort to evaluate trends now visible in these industries in terms of their future usefulness in a peaceful world.

Any conclusions it indicates should not be considered final in any sense of the word. This report is rather a preliminary reconnaissance, made during a spectacular period of transition.

Covered under the general copyright on the August 28, 1943, issue of Business Week.

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THE LIGHT METALS

About 20 years ago the Aluminum Co. of America conducted a demonstration to impress automobile manufacturers with the desirability of lightening up their cars through liberal use of aluminum. Alcoa hired a British designer who did some fancy styling, and a model aluminum car was wheeled around the Michigan motor centers for a time.

After putting it over the bumps of their proving grounds, the automobile builders brought the model back to the Aluminum Co. with their compliments. It was a very good car, they acknowledge. About what they expected, they said, in a car of that weight. As for the design and styling, some of the American designers were ready for an argument.

The upshot was that none of the automobile manufacturers wrote out any new orders for aluminum on the basis of that demonstration. Each of them was willing

for some other company to pioneer the aluminum car. So Alcoa shifted its emphasis to engineering aluminum into automobile and aircraft parts, streamlined trains, and myriad other lines. Then, four years ago, the war came along, and aircraft demands began to multiply so rapidly that the worry division was promptly transferred from the sales department to the production department.

Today, Alcoa looks forward to grooming its offspring for another courtship with the automobile industry. This time the groundwork approach will be more sophisticated. Instead of designing a car for the industry, which seems to feel it does a fairly good job of designing for itself, Alcoa will start with a stock model (1942) Pontiac sedan, purchased as a demonstrator. If anyone finds fault with the design, he will be referred to the Pontiac division of General Motors for an argument. Alcoa's arguments will be confined to the dollar-and-cents value of



Heavy production of light metal—aluminum pigs stacked in a Reynolds Metals Co. storage yard at Listerhill, Ala., a few miles from a power plant of the Tennessee Valley Authority at Wilson Dam. To produce commercial alloys, the pig aluminum is re-

melted for final purification and mixed with other materials in the cast house in the background. The name of this plant, which receives bauxite at one end and rolls finished aluminum rod and sheet from the other, honors Sen. Lister Hill of Alabama, who,

R. S. Reynolds, Sr., relates, suggested that Reynolds get into primary aluminum production as the first domestic competitor of Aluminum Co. of America. Fenced-in plant area at Listerhill is 100 acres, out of a company-owned site of 600 acres.

using aluminum in specific applications which are to be road-tested on its conventional test car.

The automobile door, Alcoa technical men have decided, ought to be a fairly easy conquest. Prior to Pearl Harbor, they had a Fisher Body plant stamp out some aluminum doors—just before it stopped civilian production. It was no novelty to find that auto doors could be made of aluminum sheet, but these doors were made on regular automobile body production presses. The only variation in regular shop practice, which had been geared to mass production of steel body parts, was the use of a beeswax lubricant and special care to keep the die faces well polished.

The aluminum door complete with hardware weighs 66 lb. A steel door for the same model car weighs 101 lb. The saving is 35 lb. per door. Aluminum in the new door is thicker than the steel sheet from which the 1942 automobile door was fabricated; the comparative figures are 0.035 in. for steel and 0.046 in. for aluminum. If you try to use the same gage aluminum sheet that you use in steel, an Alcoa man explained, you're apt to run into strength requirement troubles.

Alcoa men believe they can sell the idea of aluminum doors, not on the argument of weight saving alone, but also on the point that a lighter door stays in alignment longer and is easier to open and close.

Experts Agree, and Disagree

Aluminum and magnesium production, nationalized in control if not wholly nationalized in ownership, is now the responsibility of the Aluminum & Magnesium Division of the War Production Board. Division director is A. H. Bunker, formerly with Lehman Corp., New York, and production executive is Philip D. Wilson, a mining engineer.

While WPB has the responsibility, credit or blame for the way light metals production is coming through belongs in part to the War Metallurgy Committee, a group of higher-up technical men from private industry, and to the companies that are working in aluminum and magnesium.

The government's handling of war production has changed hands repeatedly in the last three years, but the War Metallurgy Committee has sailed on intact, except for expansions, advising the Advisory Commission to the Council for National Defense, the Office of Production Management, and the War Production Board.

Since the committee was first organized as an advisory body by the National Academy of Sciences, projects involving light metals have been at the top of its research list.

Committee chairman is Clyde Williams, director of Battelle Memorial Institute, Columbus, Ohio. Zay Jeffries, technical director of General Electric's Lamp Dept., is vice-chairman, and Louis Jordan is executive secretary in charge of committee headquarters at 2101 Constitution Ave., Washington.

WPB, its Office of Production Research & Development, whose Metals & Minerals Branch headed by Dr. C. K. Leith sings in close harmony with the metallurgy committee, and the WPB technical divisions have been under considerable pressure to try new techniques. The position of all these official and semi-official experts has been that only well-tested production methods should be approved.

However, a few experimental processes have been adopted. WPB top executives have heard hundreds of arguments in opposition to their own technical men, notably contentions to the effect that something

might happen to dry up regular sources of supply, and how about something new for insurance?

This in effect was what happened when the WPB decided to underwrite pilot-plant testing of four alumina-from-clay processes, out of hundreds of methods offered.

In its popular appeal, alumina-from-clay was classified by a WPB technician along with gold from seawater: fully possible, but tied up with practical considerations of metal content and cost of equipment. He acknowledged that every clay bank is a potential source of aluminum, but predicted that, until bauxite becomes scarcer and more costly than it is now, and until some clay extraction method proves itself commercially feasible, aluminum oxide from clay won't be worth the trouble and expense.

To separate alumina from its molecular combination with silicon in clay, he continued, is a tough and expensive job. And even under favorable technical conditions, commercial operation of an alumina-from-clay plant is held to require a nearby deposit of 10,000,000 to 20,000,000 tons of clay of uniform grade.

Alumina-from-clay arguments that prevailed over such objections included one to the effect that the domestic supply of better grade bauxite, the conventionally used aluminum ore, might give out before the end of the war—although millions of tons of lower grade ores would remain—and that imports from Dutch Guiana (Surinam) might be cut off by submarines in the Caribbean.

Separately developed alumina-from-clay processes selected for pilot-plant testing are to be operated by Kalunite Co. (affiliate of Olin Corp.) at Salt Lake City, Utah; by Aluminum, Inc., at Marysville, Utah; by Columbia Metals Corp. of Portland, Ore. (subsidiary of American Cyanamid) at a location to be chosen later; by American Nepheline at site to be picked.

Apart from the WPB program, the Tennessee Valley Authority has been working with white Tennessee clay that tests from 30% to 35% oxide content, and the Bureau of Mines has been investigating various other clay processes.



A workman breaks the crust of alumina on a bath of molten cryolite in a Soederberg electrical cell where the final process in the production of raw aluminum takes place. In this cell a low-voltage current separates aluminum from its combination with oxygen. The aluminum oxide or alumina is shoveled or hand-fed at the top; molten metal is siphoned off from the bottom every third day. The electricity is transmitted through copper bands to carbon electrodes immersed in the cryolite. Production of such a cell averages about 400 lb. of metal a day.

Having taken a trial balance of the practical uses of aluminum on its 3,400-lb. Pontiac, Alcoa has reached a tentative conclusion that the use of 500 lb. of aluminum in various parts, beginning with the engine and extending to the doors—but not the body or the frame—would make a direct saving of 500 lb. (It's a rule of thumb that every pound of aluminum thus used saves a pound of weight.) This would make possible redesign of other parts to save another 600 lb.

Thus, the redesigned sedan would be just the same size and have the same outward appearance as the 3,400-lb. stock model but would weigh only 2,300 lb. Alcoa is prepared to argue that the saving of 1,100 lb. of metal, at a minimum of 2½¢ a pound for sheet steel, would more than offset any additional cost for aluminum parts; also to point out that the lighter car would cost less to run in terms of gasoline, tires, and taxes.

"Beginning with the engine" means to Alcoa substituting aluminum castings for cast iron cylinder blocks, cylinder heads, and crank cases. (Aluminum pistons were widely used before the war.) For such parts, secondary or remelted aluminum would be specified. One engineer figures that, by the time the war ends, secondary aluminum should be so plentiful that its price may be as low as 3¢ or 4¢ a pound. (Present price is 7¢ a pound.) In view

of lower machining costs, it is argued that, on this basis, an aluminum engine would cost about the same or perhaps a little less than one made from cast iron. A lighter engine would reduce the weight-to-power ratio—that is, make possible equal performance with a smaller engine.

If you can assume that the automobile industry will make and sell 5,000,000 cars a year for the first few years after the war, and if you can accept Alcoa's contention that 500 lb. of aluminum per car is a reasonable figure, the problem of what will become of all this war boom aluminum resolves itself into simple arithmetic: 500 lb. for each of 5,000,000 cars totals 1,250,000 tons. The War Production Board's 1943 goal for aluminum (primary metal) capacity is 1,050,000 tons. Secondary aluminum is expected to add 290,000 tons. (These figures exclude Canadian imports estimated at 230,000 tons.)

So, if the aluminum industry can sell 500 lb. of aluminum per car, even at the ten-year prewar average of 2,240,000 passenger car units a year, Alcoa will be justified in keeping its worry division in the production department.

Newcomers in Aluminum

Until 1941, Alcoa was the only United States producer of new aluminum metal. But in 1940, R. S. Reynolds, Sr., who almost literally had been jumping up and down on the proposition that our supply of aluminum was going to run short, climaxed a highly successful career in the metal foil business by mortgaging his Reynolds Metals Co. of Richmond to the Reconstruction Finance Corp. in return for a loan that built a Reynolds aluminum producing and finishing plant at Listerhill, Ala. This plant began production two years ago. Since that time, a third producer, Olin Corp., an affiliate of the Western Cartridge Co., has entered the field. It operates a government-owned aluminum plant at Tacoma, Wash.

Today Alcoa, in its own and in the government-owned plants it manages, still produces about 90% of this country's primary aluminum. But its own plants, the primary concern in Alcoa's postwar planning, have total capacity of only around 400,000 tons of metal a year.

For Trucks and Buses

Passenger car applications of aluminum, of course, make only one chapter in this postwar planning. Weight-saving arguments appeal even more quickly to truck and bus builders. To the commercial carriers, each pound of weight saved means a pound can be added to the payload. For this reason, considerable work has been done in efforts to engineer aluminum alloys into truck and bus parts.

One promising application is the rear axle assembly. Its entire weight is "unsprung" or dead weight. For good riding qualities, especially when light loads are to be carried, a low ratio of unsprung weight is held most desirable. So the possibility of saving from 40% to 50% of the axle assembly weight gets serious consideration.

An Alcoa engineer's analysis of one truck axle assembly led him to the contention that 1,390 lb. of parts were subject to conversion to aluminum, that the aluminum parts would weigh 695 lb. and save 695 lb. Based on the 1931-40 production average, the use of aluminized rear

axle assemblies for all 1-ton to 5-ton trucks would require 50,000 tons of aluminum a year. Alcoa engineers hold that, in most instances, these assemblies could be designed to be as rigid as iron and with as long a service life, and that most parts could use secondary aluminum. They figure that the increased cost, as compared with iron, would balance against higher pay loads.

For Postwar Aircraft

About 90% of the aluminum producers' wartime output is allocated to the aircraft builders. The average unit in the United States' gigantic warplane program, according to the War Production Board's Aluminum & Magnesium Division, contains $7\frac{1}{2}$ tons of aluminum; a four-engine bomber of one type contains $17\frac{1}{2}$ tons. Three-fourths of the weight of a plane is aluminum, and experts in the light metals, aluminum and magnesium, like to point out that both get tougher and stronger in the cold temperatures of high altitudes.

Naturally, aircraft are not being forgotten in whatever postwar planning the aluminum companies may have time for. They plan on the basis that the aviation industry's position in 1943 is comparable to that of the automobile industry in 1918—that there is a long period of commercial expansion ahead.

Postwar planning for aluminum also thrives on prewar experience. The general public has probably heard most about the competitive use of the metal in lightweight, streamlined trains. But there were many less spectacular invasions. For instance, the beer barrel business gave aluminum a nice play before the war—about \$3,000,000 a year, Alcoa reports. And Reynolds, with its background of tin, lead, and aluminum foil manufacturing, used to have a \$3,000,000 annual business in aluminum foil beer bottle labels.

Candidate for Packaging

Reynolds figures that, if processes now in use live up to expectations, aluminum could be bonded to steel, perhaps to replace tin in the canning industry. (But can companies contend that the tin can—perhaps with improved production techniques—will continue to be "the best and cheapest container.") Aluminum foil is being bonded to cardboard for packaging military and lend-lease foods. Aluminum can be anodized (surfaced with a protective coating of oxide) in varied colors, a fact which interests costume jewelers and makers of decorative hardware. It can be drawn so fine that a pound of aluminum thread can be made to reach seven miles. (Stainless steel thread for oil filters runs 20 miles a pound.) This quality can be used in decorative insertions for draperies, table linen, and other textiles. And the idea of aluminum cloth shoes is not fantastic enough to startle the designers of women's apparel.

Aluminum foil of uniform thinness is important to radio and sound-detection equipment. In the last six months Reynolds is said to have developed a process for rolling aluminum so thin that it makes 60,000 sq. in. to the pound; it can be slit 64 times per inch after rolling, and the resulting strips would reach a theoretical 64 miles a pound.

Cycleweld (BW—Jun.26'43,p24) and other processes that are under development to use synthetic resin bonds, rather than welds or rivets, offer promising economies in fabricating aluminum. Another interesting development is stitching or stapling light metal sheets with steel wire.

Other technical developments are coming along rapidly. Reynolds, for example, is reported to have a new secret aluminum alloy designed to replace "pure clad 24-ST sheet," the type used for a good share of the current aircraft tonnage. Developed by the company's chief metallurgist, T. L. Fritzlen, the new alloy is claimed to have shown superior qualities in yield, tensile strength, and elongation tests; to contain no elements not present in 24-ST, a circumstance which would simplify scrap recovery problems, and to be more easily annealed and worked than alloys of its type now in use. If it proves to be 20% stronger than older types, as reported, it could reduce weight and thus add speed or load to existing aircraft designs.

New Methods, New Alloys

Extrusion of aluminum alloys, that is, pushing the metal by tons of pressure through a die—to make channeled shapes and bars—is on the upswing. Three new extrusion plants are to be operated by Phelps Dodge Co. and Anaconda (copper companies getting into aluminum fabrication for the first time) and by Reynolds.

Compared with the postgraduate type of technical data now available on steel, the alloying of light metals is in the elementary school stage of development, and specialization is a key which even the smallest metal-working companies can use to unlock opportunities.

George E. Barnes, whose few thousand dollars worth of foundry equipment at 4007 Detroit Ave. in Cleveland would hardly make a flyspeck on Alcoa's \$574,000,000 balance sheet, specialized in an effort to find an aluminum alloy of high tensile strength that would eliminate the necessity of expensive heat treating. After eight years of experimenting, he patented an aluminum base alloy containing copper, nickel, chrome, magnesium, and titanium which he thinks fills the bill. He is running the aluminum section of his foundry at full capacity—about five tons a month—making this alloy, which he calls Barnite, and reports it has been so successful that he is getting ready to license other producers.

Barnes has no research department, and his total payroll is 20 men, but he kept trying out different combinations in "heats" until he got one that clicked. He made the effort, not because of any interest in pure science, but because every time he got an order for a job that required heat treating, he had to farm it out to one of the bigger foundries. He had no heat-treating equipment. It got his goat, he said, to make the patterns and have to send them out to some other foundry.

On Aluminum's List

From such wartime developments, added to prewar experience, comes a growing list of postwar possibilities. Lifeboats, the superstructures of ships, railroad hopper cars, the upper stories of buildings, household furniture, window frames, screens, and thousands of other things



Demonstrating that aluminum is indeed a "light metal," an Alcoa woman worker applies a light hand to the job of gaging the thickness of a pile of big round aluminum

sheet blanks. Those that do not conform to the gage test will be scrapped and remelted. Most of the inspection work in the aluminum mills is handled by women.

could be made of aluminum by processes already well understood in the metal-working industries.

In all this postwar planning, the conversion, retooling, and plant building necessary to adapt the light metals to peacetime production are a major consideration. An Alcoa engineer, for example, told a group of automobile manufacturers in Detroit recently that if they expected to commit themselves to the use of aluminum castings on their production lines, they should begin to think about installing their own aluminum foundries, because there is no aluminum foundry in existence that could produce castings for as many as 1,000 power plants a day.

Because new equipment will be necessary for light metal work, and because the metal-working trade is going to be "price-minded" in looking for new business, this engineer said, there may be a mad scramble to cut production corners and a major opportunity in the shape of postwar sales of new foundry equipment.

To indicate what facilities would be needed, on the

basis of using 500 lb. of aluminum per car, he figured 200 of the 500 lb. would be secondary alloy castings. There would be 20 lb. of primary metal castings, 15 lb. each of forgings and die castings, and 250 lb. of stampings. For mass production jobs, he advised, parts should be designed for the permanent mold process if possible, and designers should make dimensions generous enough to avoid skimpy castings and high scrap losses, because "foundry losses can grow to large proportions very rapidly."

New Fabricating Plants

Typical installations of fabricating equipment have been Packard Motors' gray iron foundry converted to aluminum for marine and aircraft engine castings a year ago; Alcoa's sheet mill in Chicago and its big new forging plant at New Castle, Pa.; the Willys-Overland Motors Co. forging plant in Toledo; Maryland Sanitary Works extrusion plant, Baltimore; Alcoa's new extrusion plants

at Cressona, Pa., and Phoenix, Ariz., its new cylinder head plant at Kansas City, its rod and bar mills at Massena, N. Y., and Newark, Ohio.

Bohn Aluminum & Brass Co. of Detroit is operating an estimated \$25,000,000 of new government aluminum fabricating plants, and its financial statements show \$3,000,000 wartime plant investment of its own funds. National Bronze & Aluminum Foundry Co., Cleveland, large producer of aluminum engine castings, has doubled and redoubled its facilities since 1940.

Production of secondary or remelted aluminum, according to War Production Board sources, is running four times the 1939 rate. National Smelting Co. of Cleveland, one of the leading processors of secondary aluminum and magnesium, makes a slightly more conservative estimate of secondary aluminum expansion, and adds the observation that magnesium remelting has increased 50-fold in the last four years.

Light metal scrap used to consist of worn out automobile pistons, pots and pans, and other obsolete aluminum goods. Today the bulk of such scrap comes from industry in the form of leftover pieces and chips from machining operations. Trade sources add that the volume of scrap from wrecked planes, both ours and the enemy's, has become "substantial."

Raw Material Situation

On the raw material side, geologists have estimated that the earth's crust contains between 7% and 8% aluminum, more than any other metal. Bauxite (commercial grade aluminum ore), alunite (a lower grade ore), and clays from which aluminum may be extracted at a price are inexhaustible. However, the United States' own supply of known high-grade bauxite is not inexhaustible, and that fact points up the light metals' only raw material supply worry of the immediate future.

The best known kind of bauxite easily available to the United States comes from Dutch Guiana (Surinam) in northern South America. There, and in Brazil, geologists have explored vast deposits. But, in time of war, such deposits may be denied to our plants because of submarine raids on shipping.

About 97% of the known domestic supply of commercial grade bauxite is in Arkansas. This supply is now considered good for a short war at the present rate of withdrawal, but that rate might be expected to slow up as the best pockets are picked clean. Other bauxite workings include deposits in Alabama, and Reynolds is reported to be making a systematic survey of bauxite outcroppings along the Gulf Coast.

Piecing-Out Program

To make our domestic bauxite last through the war, and to insure continuous operation of aluminum reduction plants regardless of the shipping situation, the War Production Board has adopted a lime soda process—worked out in Alcoa plants in collaboration with WPB technicians—which treats the red mud waste from so-called Bayer process plants that make pure aluminum oxide—or alumina, as the trade calls it—from bauxite.

The filtered product from the lime soda waste treat-

ment is fed back into the plant along with new ore. Because the low-grade bauxite used in plants that are installing the lime soda supplemental treatment is a mixture of bauxite and clay, the WPB points out that, in effect, aluminum is being produced from clay.

All of the aluminum, as well as 70% of the magnesium, now being produced in the United States is reduced to metal by electrolytic action. This means that an electric current separates the metal from its marriage with oxygen in aluminum oxide (alumina). The reaction takes place in "cells" or "pots," each of which is the size of half a dozen ordinary bathtubs. Before going into the cell, bauxite must be reduced to pure, dry alumina by a series of washing processes in chemical solutions and by heat. The intermediate oxide or alumina looks like coarse white sugar.

It takes four pounds of bauxite to make two pounds of alumina, and two pounds of alumina to make one pound of aluminum. Also, this pound of aluminum requires



Workers who use flexible-shaft files, burrs, and grinders to finish intricate aviation castings of magnesium get careful fire protection. A downstream of air through the grille top of an enclosed work-bench forces the resulting magnesium dust into a fire-safe dust collector below, and workers wear special smooth clothing to which the dust will not adhere. To fire-prevention measures, plants using magnesium must add protection against certain health hazards. Magnesium dust may cause "bubbles" under the skin; fluorides in core sands and sulphur in hot magnesium are possible sources of skin irritation.

five pounds of other materials, including soda ash, and calls for carbon electrodes which transmit the electrical current to the alumina in a bath of molten cryolite (a mineral found in Iceland, also produced synthetically from domestic fluorspar), and for 10 to 12 kwh. of electric current.

Lightweight Champion—Magnesium

Magnesium is the No. 2 light metal. In aircraft designing, aluminum and magnesium alloys are considered as a group "the light metals." Magnesium's expanding production—70 times the prewar rate—may be highly significant to postwar industry.

Magnesium alloys are the lightest metals now available for the shapes and forms of industrial use. The metal is two-thirds the weight of aluminum—or, as its producers insist, aluminum is 50% heavier than magnesium.

(There are other light metals, but none of them has become important in the metal-working trades as a structural material. Calcium and sodium are two examples. They combine too violently with oxygen for any structural uses. Beryllium, another light metal available in limited quantities for alloying purposes and other relatively low-volume uses, will be discussed here separately.)

Magnesium raw materials, like aluminum-bearing earth, can be considered inexhaustible. Seawater, an important source of magnesium, certainly is unlimited, and there is no indication that the magnesium-bearing brines now being worked in Michigan and the known but untouched brines in southwest Texas will run dry for the next few generations. Besides, there are immense deposits of magnesium-bearing minerals in Nevada, Texas, and other states.

Looks Like Aluminum

Magnesium has the silvery white appearance of aluminum, and magnesium chloride, which is fed to electrolytic cells comparable to those which extract aluminum from its oxide, is a sugary white powder like alumina. About 70% of our current magnesium production comes from electrolytic cells. Being extremely light, the metal has to be ladled from the top of these cells. (Aluminum is siphoned from the bottom of its own type of cell.)

Dolomite, one kind of magnesium ore, contains 13% magnesium; brucite, the richest kind, contains about 41%. Seawater, from which large tonnages of magnesium are being produced through lime and acid precipitation of magnesium chloride, contains only 0.13%. This means that about 0.01 lb. of magnesium can be extracted from a gallon of seawater.

Dow Chemical Co., which extracted a good share of its prewar profits in the form of magnesium from Michigan brine wells, applied its talents to seawater and blossomed out with a seawater plant at Freeport, Tex., two years ago. Since then it has built another \$50,000,000 seawater unit in Texas, and another brine unit in Michigan to use the rich (10%) magnesium chloride brine recently found near Ludington.

Anaconda Copper Mining Co. got into magnesium production a few months ago as manager for the govern-

ment of one of the biggest projects in the business, Basic Magnesium, Inc., at Las Vegas, Nev., which was first launched by a subsidiary of Basic Refractories of Cleveland. Its magnesite ore is quarried and concentrated at Gabbs, about 300 miles north of Las Vegas, then trucked to the reduction plant where the concentrate is briquetted with coke and peat moss before it is fed to the electrolytic cells.

Heat, rather than electricity, reduces magnesium from its ore in the ferrosilicon process, which accounts for about 20% of the WPB magnesium program. In the opinion of WPB officials, successful operation of the ferrosilicon process has been one of the outstanding technical achievements of the war. Reduction takes place in vacuum-sealed retorts; vaporized magnesium condenses in a water-cooled sleeve that is a part of the retort cylinder.

Developed in Canada

The ferrosilicon process was developed for Dominion Magnesium Co., Ltd., Ottawa, by Dr. L. M. Pidgeon, and piloted in the United States by Electro Metallurgical Co., a division of Union Carbide & Carbon Corp., and Ford Motor Co. Subsequently, New England Lime Co., Henry J. Kaiser's Permanente Metals Corp., Magnesium Reduction Co., a subsidiary of National Lead Co., and Amco Magnesium Co., an American Metals Co. subsidiary, were authorized to use it.

A third process, which has had more than its share of trouble, was brought to this country by Fritz J. Hansgirk, an Austrian scientist who persuaded Kaiser to try it out in California. Because Kaiser backed it with his own funds, as well as Reconstruction Finance Corp. credit, he is reported to be determined to make it succeed.

In this process, magnesium oxide feed stock, obtained from Westvaco Chlorine Products Co. nearby, is mixed with coke and charged into an electric arc furnace. The resulting magnesium vapor is shock-cooled with natural gas for precipitation, mixed with oil, then separated in stills. The high reaction temperature, 2,100C, has been hard to control exactly; the process tends to reverse itself. Fires have resulted, one reportedly having destroyed the first Hansgirk plant in Austria. Five men have been killed at the Permanente plant, three of them when a workman tried to run a grinding machine with high-pressure natural gas. But Kaiser, who claims to like the tough jobs, apparently clings to his modified Hansgirk process, while a second Permanente magnesium project uses the ferrosilicon method.

Government Has Process

The Bureau of Mines has a magnesium reduction process comparable to the Hansgirk process on trial at Pullman, Wash. Its shock cooling is done with "a liquid hydrocarbon" rather than with natural gas.

Two alkali companies, Diamond and Mathieson, and Union Potash Co., a subsidiary of International Minerals & Chemical Corp., use plant wastes as part of their raw materials in magnesium production and employ electrolytic reduction methods.

Magnesium is not only lighter than aluminum but

also stiffer and more brittle. It is more easily machined than any other widely used metal. Its sand castings are relatively expensive; die castings and pressings of magnesium are more likely to compete with aluminum on a cost basis.

In aircraft instrument panels, cowling, dust covers, and "bigger" castings, magnesium has been useful in reducing weight, which in turn steps up speed and carrying capacity. Its first use on aircraft was in landing wheels, saving from 50 lb. to 150 lb. per plane on medium and heavy models. Where rigid construction is desirable, magnesium frequently is preferred to aluminum. Rigidity increases as the cube of a metal's thickness, and an instrument panel of magnesium alloy may be 2.55 times as rigid as an aluminum section of equal weight but thinner construction.

When magnesium and aluminum again are available for civilian manufacturing, they may compete directly for some applications, but they also supplement each other. (Recognizing this, Alcoa organized the American Magnesium Corp. as a subsidiary about 25 years ago; it continues to be the leading fabricator of magnesium products.) Aluminum alloys contain from a fraction of 1% to 10% magnesium; magnesium base alloys contain comparable amounts of aluminum.

Jobs for Magnesium

Before the war, Dow was urging adoption of magnesium alloys for manually handled tools, reciprocating or revolving parts in high-speed machinery, to reduce transportation costs on metal containers or other articles frequently reshipped, to make foundry core boxes, pattern plates, foundry flasks, dock boards, photoengraving plates, portable pump castings, conveyors, truck and bus chassis and body parts; in short, for any application where a magnesium alloy could meet strength requirements and where the article had to be handled or transported. Magnesium producers also visualize the possibility of substituting their lighter metal for aluminum in aircraft wing fabrication; they visualize a thicker skin with smooth, flush, and polished surfaces, reducing the "drag" caused by the irregularities in riveted aluminum skin.

Weight-saving is magnesium's principal selling point. Such other considerations as appearance and machinability have, so far, been strictly secondary.

To indicate weight savings possible with magnesium, Dow compiled this table of relative weights of the commonly used structural metals:

| Material | Specific Gravity | Relative Weight | Weight | |
|--------------------------|------------------|-----------------|------------|------------|
| | | | lb./cu.in. | lb./cu.ft. |
| Magnesium Alloys | 1.8 | 1.0 | 0.065 | 112 |
| Aluminum Alloys | 2.8 | 1.6 | 0.101 | 175 |
| Zinc | 7.1 | 3.9 | 0.256 | 443 |
| Cast Iron | 7.2 | 4.0 | 0.260 | 450 |
| Tin | 7.3 | 4.1 | 0.264 | 456 |
| Steel | 7.9 | 4.4 | 0.285 | 493 |
| Brass | 8.5 | 4.7 | 0.307 | 531 |
| Bronze | 8.8 | 4.9 | 0.318 | 550 |
| Nickel | 8.9 | 4.9 | 0.322 | 556 |
| Copper | 8.9 | 4.9 | 0.322 | 556 |
| Lead | 11.3 | 6.3 | 0.408 | 706 |

Another comparison used to demonstrate an "edge"

for the light metals over nonferrous competitors is price per unit of volume. To compete with aluminum and magnesium on a sheer volume-price basis, one light metal producer figured, copper would have to sell at 4.55¢ per pound, and zinc, at 5.7¢. The comparison:

| Metal | Cents per lb. | Dollars per cu.ft. |
|---------------------|---------------|--------------------|
| Magnesium | 20.50 | 22.35 |
| Aluminum | 15.00 | 25.35 |
| Zinc | 8.25 | 36.80 |
| Copper | 12.00 | 66.84 |

Of course, this comparison disregards the obvious fact that in a specific application, a cubic foot of copper or zinc would not be replaced by a cubic foot of magnesium or aluminum. Ordinarily, a much smaller volume of the heavier metals would be required.

Incidentally magnesium, like aluminum, has a history of dramatic leaps down the price scale. In 1915, a pound sold for \$5; in 1925, for \$1; in 1943, for 20.5¢. (Aluminum's price progress has run from \$545 a pound in 1852 to \$34 in 1856 to \$17 in 1859 to \$8 in 1886 to less than \$1 in 1901 to 15¢ in 1943.)

The war in general and the German aircraft builders in particular were responsible for a good deal of the current expansion of American magnesium production. The authorized annual output is now 265,000-plus tons, all facilities to be completed this year. Our military authorities began to order quantities of magnesium for aircraft after they had examined some of the first German planes shot down over England.

Immediately after Pearl Harbor, new magnesium plants were authorized right and left. They have swung into production so rapidly that this year there was a temporary surplus of magnesium, and aircraft builders were urged to do some redesigning to take care of the new supply.

Before it was adopted by the aircraft industry, magnesium was best known for its flashy burning properties. It had been widely used in tracer bullets, flash bombs for military planes in night operations, and incendiary bombs.

Licking the Fire Hazard

In the shop, magnesium's flashy qualities become a handicap; but when the nature of this handicap is understood, the metal can be dealt with safely. What happens when a spark touches magnesium dust or shavings is illustrated by a photographer's flash bulb. In solid form, magnesium is not ignited readily; its burning temperature is about 1,200F.

Water on burning magnesium makes the metal burn more violently. Magnesium burning on a concrete floor combines with oxygen in the water of crystallization present in the concrete, which may explode and shower the fire over a large area. Magnesium on a wood floor burns quietly; the surrounding floor may be wet down to control the blaze, but care must be taken to keep water away from the burning metal.

Cutting tools working on magnesium should be kept sharp to avoid overheating the work; scrap should be swept up constantly, kept in covered metal containers and in small lots, and removed as rapidly as possible for



The amazing lightness of these magnesium warp beams, giant spools used in textile manufacture, makes the textile industry look like a promising postwar market for this

light metal. The inspector, who is easily swinging one of the warp beams under his gage, will argue that they are only a fourth the weight of comparable steel parts.

remelting. Magnesium dust from grinding should be carried away in water (low concentration of magnesium in water is not considered dangerous) and the sludge buried. These are only a few of the safety rules that it is necessary for a processor of magnesium to observe for his own protection.

(Dow Chemical Co., Midland, Mich., and the National Fire Protection Assn., 60 Batterymarch St., Boston, are among the organizations that have done research on magnesium fire-protective measures, results of which are available to industrial executives.)

Helium in New Role

Successful fusion welding of magnesium, despite its flammable properties, is claimed for the Heliarc process developed by technicians of Northrup Aircraft, Inc., in collaboration with Dow. This is done with the aid of helium, an inert gas, which protects the molten metal from contact with air.

As described by Thomas E. Piper, a process engineer at Northrup, whose associates, V. P. Pavlecka and Russ Meredith, were given credit for the invention, a sheath of helium is blown from the welding torch tip, entirely

surrounding the tungsten electrode from which a direct current arc passes to the work to generate melting heat. The helium absorbs enough heat to keep the temperature of the surrounding metal down to a safe level. No flux is used on the filler rod.

Beryllium—Short on Supply

Beryllium is a light metal, comparable with magnesium in weight, whose supply and present relative importance have been subject to frequent exaggeration. After studying its possibilities for some months, the War Metallurgy Committee in Washington reported that beryllium is in no way likely to revolutionize the metal-working industry, as newspaper stories had suggested.

The main problem in the beryllium situation is a dearth of ore. Beryllium ore to be available to the United States this year is expected to total about 6,000 tons, against a demand of 7,200 tons. The ore contains between 4% and 5% metallic beryllium. Colorado and South Dakota will produce from 100 to 150 tons; the rest will come from Brazil with minor tonnage from Argentina.

In metal work the chief value of beryllium lies in its

use as an alloy and hardening agent for copper. Brush Beryllium Co., the leading interest, produces a 2% beryllium "master" alloy in an electric arc furnace from a charge of copper, beryllium oxide, and carbon. Other copper base alloys contain from 0.3% to 2.5% beryllium. They have high fatigue strength (specially prized in springs), high tensile strength, and good resistance to wear, corrosion, and room temperature creep. Beryllium copper is used in parts for aircraft, ships, tanks, guns, shells, instruments, engines, motors, and electrical equipment. (Example: hub cones for adjustable pitch propeller.)

In such applications demanding high durability, it replaces bronze. In a search for satisfactory substitutes for copper beryllium springs, cold-worked brass and bronze, mildly heat-treated, have shown promise. Nickel beryllium alloys have been made, but other nickel alloys of equal quality can be made more cheaply. Beryllium aluminum alloys containing 35% beryllium have likewise been too expensive for practical adoption. A small amount of beryllium has been helpful in magnesium base castings, although beryllium is almost insoluble in molten magnesium at all temperatures.

Used in Lighting

Beryllium oxide is the most important phosphor—that is, adapter of electrical radiation to light waves. Beryllium phosphors are used in about 92% of the fluorescent electric lamps now being manufactured. A pound of beryllium oxide is enough for 4,000 fluorescent lamps; 10,000 lb. a year is held to be adequate at present for fluorescent lighting, X-ray screens, and television.

Fired for use as a refractory material, beryllium oxide is extremely strong and hard, is specially resistant to quick temperature changes, and is held to be superior for insulating electric furnaces. Its melting point, 4,600F, is about 900 degrees above that of aluminum oxide.

Beryllium metal, cast into small ingots and hot rolled, is used for vacuum-tight windows in X-ray tubes, transmitting soft X-rays better than any other known material.

However, metallurgists hold that if any "revolution" comes through beryllium, it will have to be accompanied by the discovery of vast quantities of ore, plus discovery of a method to make it ductile.

There are two companies in beryllium production: Brush Beryllium Co. of Lorain, Ohio, founded by Charles F. Brush, Cleveland pioneer in electric lighting who hired C. Baldwin Sawyer to do the laboratory work on the metal 22 years ago; and Beryllium Corp. of Pennsylvania, in Reading, which purchased beryllium patents formerly held by a subsidiary of Union Carbide & Carbon and by the Siemens-Halske interests of Germany.

Germany Gets the Jump

When war broke out in Europe in 1939, the Germans had one important production advantage over all the other countries of the world—in the light metals. Through dominating light metals, and therefore dominating the air, the Nazis planned to conquer as much of the world as they thought they needed.

This seems clear in retrospect, but it was not clear in the United States at that time. In 1938, the Germans reported 175,000 tons of aluminum production and they had purchased unlisted tonnages from France and other countries. The United States in 1938 produced 130,129 tons of aluminum.

The Germans' margin in magnesium was even greater. The records show that they produced 14,100 tons of that metal in 1938, against a total United States output of less than 3,000 that year.

The Great Antitrust Case

All the aluminum produced in the United States in 1938 was the output of one company, Alcoa; all United States magnesium that year was produced by Dow. This situation obtained until 1941. Four other companies had been producing magnesium during the first World War—1918 output totaled 142 tons, all for flares and other pyrotechnics—but all except Dow and the American Magnesium Co., an Alcoa subsidiary, retired from the field after the armistice. In 1927 American Magnesium stopped metal production and confined its activities to fabrication.

Alcoa and Dow, therefore, were shining marks, at which the Antitrust Division of the Justice Dept. proceeded to shoot the works.

Alcoa, having signed an antitrust consent decree in 1912 and having paid a high-priced battery of lawyers to spare no effort and expense to keep the company outside the jurisdiction of the Sherman Act, resisted in court. The result was the longest trial in the history of American jurisprudence, reported to have cost Alcoa some \$2,000,000 and the Justice Dept. an additional \$500,000. It dragged out for two and a half years. Judge Francis G. Caffey, of the United States District Court, Southern District of New York, took another ten days to read his decision. He upheld Alcoa on every count.

—And What the Judge Said

Judge Caffey held that Alcoa did not have a monopoly in bauxite; that it did not engage in monopolistic practices in acquiring power sites (the court judicially recognized "foresight" and "prudence"); that patents on the Bayer process of making alumina (oxide) had expired about 40 years ago, and the reason no other company had entered aluminum production was the belief by those who considered such a venture that it would not make money; that Alcoa had no monopoly in the sale of aluminum or aluminum products; that there was no evidence to connect Alcoa with any international agreements with respect to aluminum production.

The government's case on international agreements aimed to prove that Alcoa's divorce from Aluminium, Ltd.—which had been a Canadian subsidiary (the Canadians spell it "aluminium") until its stock was distributed to Alcoa shareholders—was a sort of legal fiction. (Aluminium, Ltd., is headed by Edward Davis, who is a brother of Alcoa's board chairman, Arthur V. Davis.)

Through Aluminium, Ltd., the government charged, Alcoa agreed with German and French aluminum inter-

not clear the Government's production in France in 1938... to limit production and keep prices up. Alcoa denied the allegation. Even if there had been such evidence, Judge Caffey held, it had not been proved that such agreements had restricted the sale of aluminum in the United States.

The Alcoa case bypassed the U. S. Circuit Court of Appeals and went directly to the Supreme Court. It may rest there permanently, undecided. The reason is technical: The law requires that a quorum of six justices must participate in any decision; and in the aluminum case, four of the nine justices (Stone, Murphy, Jackson, and Reed) disqualified themselves from consideration because they used to work for the Justice Dept. Only if one of the four should give place to a new appointee who proves a virgin with respect to aluminum can there be a final decision without a special act of Congress.

Now Shares the Field

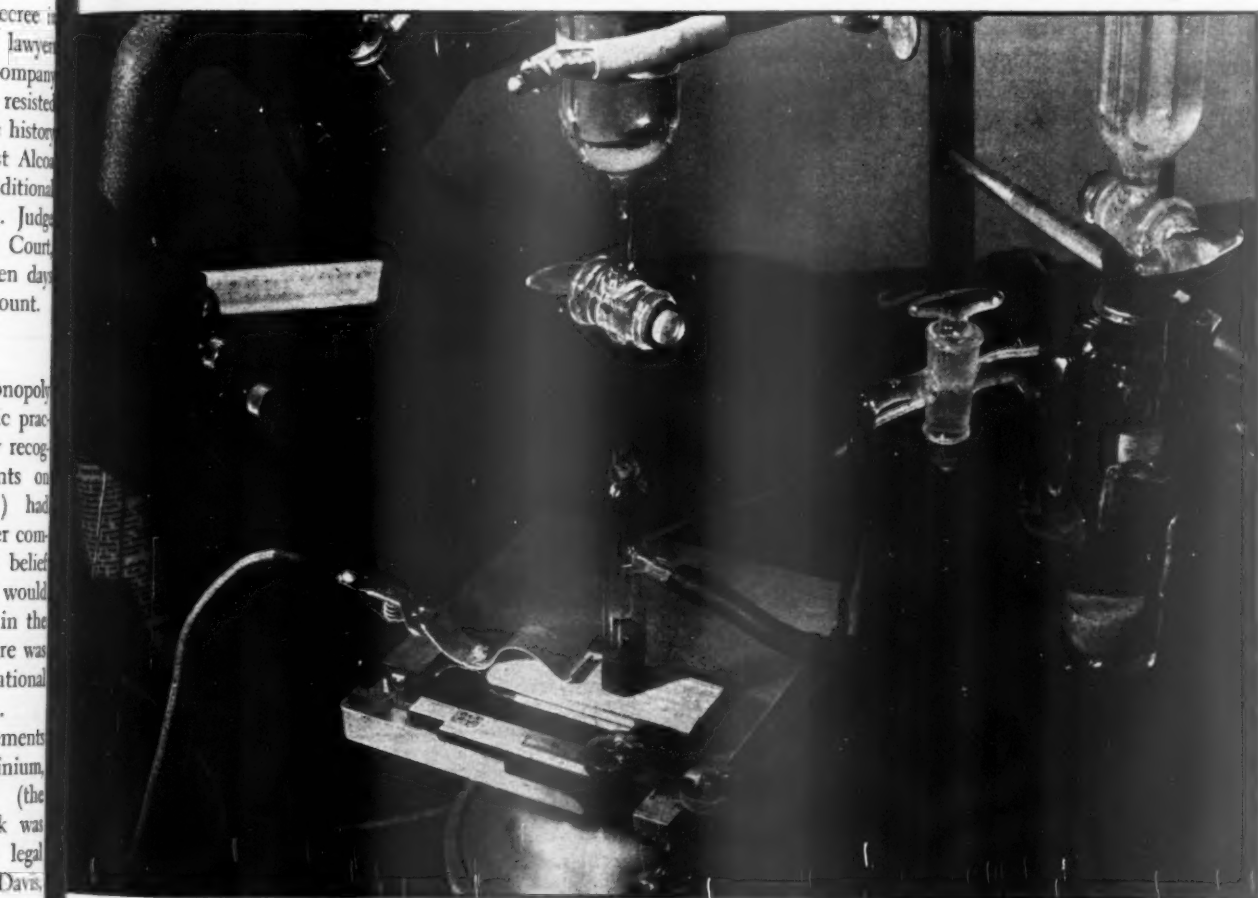
Such a decision now would be academic rather than practical. Alcoa has ceased to be the only producer of aluminum; it shares the field with Reynolds and Olin. The government, not Alcoa, owns the lion's share of the United States' aluminum production, some 600,000 tons of the 1,050,000-ton annual capacity authorized

under the WPB program, which is now 95% completed.

However, it would be naive to conclude that Alcoa no longer dominates the aluminum industry. It still does. While figures on individual plant capacities are restricted, the relative importance of Alcoa's position may be gaged by the fact that there are only three aluminum-producing plants in this country that it does not either own or operate.

Although Alcoa complains mildly that it has had to spread its specialized manpower and technical experience pretty thin over its ballooning activities, its competitors acknowledge that it is doubtful that any other company can produce aluminum as cheaply as Alcoa. This doesn't necessarily imply a death sentence for the newcomers. As long as every possible ton is urgently needed for war purposes, it is in the national interest to see that every company in light metals production stays in until the war ends. By that time, the newcomers may be able to match costs with the old-timers. Furthermore, Reynolds, Olin, or any other possible producer might apply its efforts to one or a few specialty lines and have a fair chance of holding its place against any competition.

Alcoa's own analysis of its function is to manufacture raw and semifinished goods. The Reynolds atti-

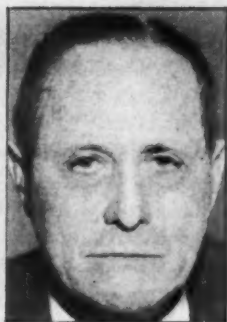


This photogenic piece of laboratory apparatus detects structural variations on metallic surfaces and is particularly useful in the study of spot welding for aluminum aircraft parts. Technically, it measures point-to-point varia-

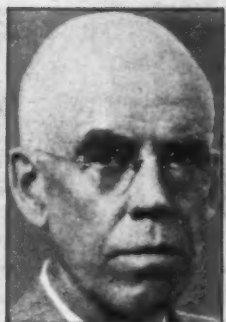
tions in electric potential to indicate relative corrosion-resistance on the surface being tested. The light metals are also large users of X-ray inspection equipment and laboratory movie film for scientific work.



A. H. Bunker



Philip D. Wilson



C. K. Leith



Clyde Williams



Zay Jeffries

Key men in the government's wartime establishment for the control of production and development in the vital field of the light metals include (from the left): the chief and the production chief of the Aluminum & Magnesium

Division of the War Production Board; the chief of the Metals & Minerals Branch of the Office of Production Research & Development; the chairman and the chairman of the War Metallurgy Committee.

tude represents an opposite point of view. Noting that Alcoa, Chevrolet, and one or two others are the only producers of pressure castings and forgings of aluminum in this country, Reynolds intends to "get into that later"; meanwhile the company is making hay in other lines of aluminum fabrication.

Reynolds executives point out that aluminum ingot brings only 15¢ a pound (pig is only 14¢) whereas fabricated aluminum is worth 35¢ to \$1 a pound. With some 125,000 tons of fabricating capacity and only 80,000 tons of ingot capacity, Reynolds figures to keep its ingot plants busy meeting its own metal requirements, indefinitely; and to let Alcoa worry about the price of primary metal. The Reynolds fabricating equipment is said to be designed, in general, to handle both aluminum and magnesium.

As evidence of its preoccupation with the fabricating end of the business, Reynolds has worked out a system in its Louisville mills that is designed to use every possible square inch of aluminum sheet in aircraft stampings, and quickly to remelt the scrap for more sheet of the same analysis at the same location. Savings in transportation are considered among the most important dividends.

Anyone who believes the aluminum producers will all play in the same symphony after the war might change his mind after checking with Reynolds or Olin executives.

Magnesium in Court

Antitrust complaints touching the magnesium business have also become academic. They were quickly buried under a consent decree, binding Dow Chemical Co., General Aniline & Film Corp., the Magnesium Development Corp., Alcoa, and Alcoa's subsidiary, American Magnesium Corp., to refrain from anything faintly resembling monopolistic practices in the future. The decree was dated April 15, 1942.

The Justice Dept. charged Alcoa with conspiring with Interessengemeinschaft Farbenindustrie, Aktiengesellschaft

(literally, "Intercommunity of Interests of the Dye Industry, Incorporated," commonly known as I. G. Farben) to set up Magnesium Development Corp. in 1932 as a patent holding company; with Dow to grant that company exclusive production rights in return for corner on magnesium fabricating. American Magnesium, according to the indictment that Assistant Attorney General Thurman Arnold obtained in a federal court on Jan. 30, 1941, agreed in 1927 to buy all its magnesium requirements from Dow, "agreed to stop and did stop producing magnesium," and obtained magnesium from Dow at prices "more favorable than those prices quoted to other purchasers."

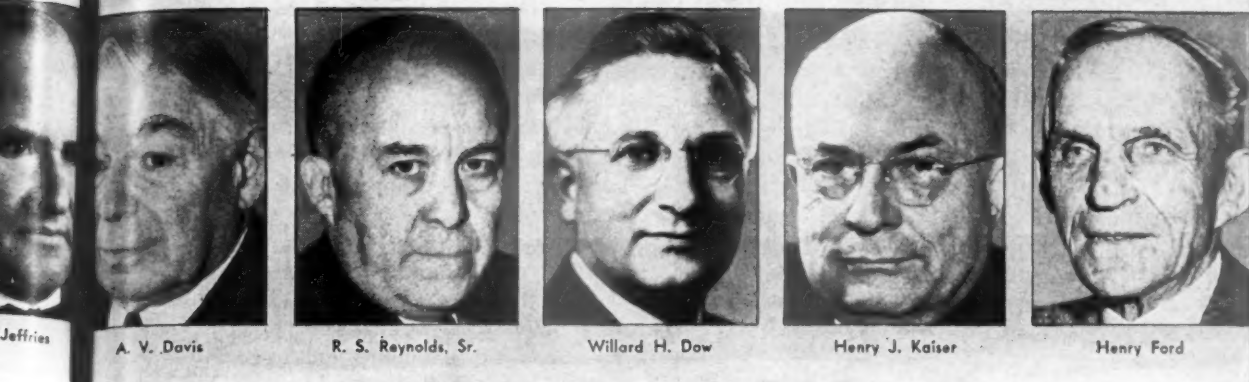
Magnesium Development Corp. was organized under a 50-50 ownership agreement, according to the indictment, between Alcoa and I. G. Farben, which operated through General Aniline, an American subsidiary.

In effect, the government charged that the business dealings between Alcoa, Dow, and I. G. Farben had held back the development of a magnesium industry in this country.

Alcoa and Dow argue that prewar access to German technology has been a national asset, rather than a liability. They specifically denied any monopolistic practices in signing the consent decree by which they agreed to refrain from monopolistic practices in the future. They promised to submit any future agreements to the Justice Dept., and to license other producers through nonexclusive royalty contracts.

Regardless of controversies involving Alcoa and Dow with the Antitrust Division, the United States hardly could have achieved superiority in the light metals without these two producers or their counterparts. Both have been aggressive in developing new uses for the light metals, and in expanding war capacity in advance of government financing.

As late as last year, when war-expanded facilities began to show up in the figures, Alcoa and Dow each accounted for about 90% of the primary metal production in its field. According to the War Production Board,



A. V. Davis

R. S. Reynolds, Sr.

Willard H. Dow

Henry J. Kaiser

Henry Ford

Chief of
Product
and the
e.

Top executives of industrial companies that have been ex-
panding America's supply of the light metals under the
war of war include (from the left): the chairman of the
board of the Aluminum Co. of America; the president of

Reynolds Metals Co.; the president of Dow Chemical
Co.; the president of Permanente Metals Corp.; the pres-
ident of the Ford Motor Co. What they are doing and
where they are headed is the subject of this report.

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tonnages of aluminum and magnesium primary produc-
tion for the five years, 1939-43, including midyear esti-
mates for this year, are:

| Year | Aluminum (tons) | Magnesium (tons) |
|------|-----------------|------------------|
| 1939 | 163,545 | 3,350 |
| 1940 | 206,280 | 6,261 |
| 1941 | 309,156 | 16,385 |
| 1942 | 521,097 | 49,990 |
| 1943 | 928,503 | 204,304 |

Aluminum production facilities, the WPB reports, are
distributed as follows:

Owned by Alcoa—Alcoa, Tenn.; Badin, N. C.; Massena,
N. Y.; Niagara Falls, N. Y.; Vancouver, Wash.

Owned by Defense Plant Corp., operated by Alcoa—Jones
Mills, Ark.; Massena, N. Y.; Maspeth, N. Y.; Burlington,
N. J.; Los Angeles, Calif.; Riverbank, Calif.; Troutdale, Ore.;
Spokane, Wash.

Owned by Defense Plant Corp., operated by Olin Corp.—
Tacoma, Wash.

Owned by Reynolds Metals Co. (Reconstruction Finance
Corp. financed): Listerhill, Ala.; Longview, Wash.

Magnesium production facilities, as reported by WPB:

Dow Chemical Co.—Midland, Mich., and Freeport, Tex.;
Dow Magnesium Corp.—Marysville, Mich., and Velasco,
Tex.; Permanente Metals Corp. (Kaiser)—Permanente and
Manteo, Calif.; Mathieson Alkali Works, Inc.—Lake
Charles, La.; Diamond Magnesium Co. (Diamond Alkali
subsidiary)—Painesville, Ohio.; Magnesium Reduction Co.
(National Lead Co. subsidiary)—Luckey, Ohio.; Basic Mag-
nesium, Inc. (operating company now owned by Anaconda
Copper Mining Co.)—Las Vegas, Nev.; New England Lime
Co.—Canaan, Conn.; Ford Motor Co.—Dearborn, Mich.;
Ameco Magnesium Co. (American Metals Co. subsidiary)—
Wingdale, N. Y.; International Minerals & Chemical Corp.—
Austin, Tex.; Electro-Metallurgical Co. (Union Carbide &
Carbon subsidiary)—Spokane, Wash.

The Defense Plant Corp. aluminum program is figured
at approximately \$1,000,000,000, of which about 50% is
for primary production, 50% for fabrication. The mag-
nesium program is another \$350,000,000 for primary pro-
duction, plus a relatively smaller amount for fabricating
plants, which in many instances are converted iron
foundries.

In considering postwar competition between the light
metals themselves, between the light metals and plastics,
and between the light metals and the steels which may
be fabricated in lightweight sections, price may be the
most important factor.

As indicated, aluminum and magnesium prices are
about equal on a volume basis. In a peacetime economy,
the tonnage of each may be closely related to its price
situation: low price usually means increased adoption
of a material, setting up the familiar cycle of mass
production and decreasing unit costs.

In a recent review of its postwar plans, Alcoa stated
as a truism that the material which serves best at the
lowest ultimate cost will invariably be used in industry.
"Ultimate cost" is the significant part of Alcoa's argu-
ment.

Steel's Competition

First cost will continue to be a talking point for
steel for a long time; its base price now, weight for
weight, is about one-tenth the price of aluminum. Steel
men, who think of the light metals as one of the light
industries, point out that steel could equal this year's
aluminum tonnage in about four days' operations; that
steel, using aluminum as a deoxidizer, is one of the
aluminum industry's biggest customers; that every pound
of aluminum used calls for the use of some steel. Alcoa,
in turn, dwells on the special merits of other materials
that may be used along with aluminum.

There's a sharper edge to the intermetals competi-
tion, however, than such talk indicates. There will
be plenty of competition among the alloys, according
to Paul D. V. Manning, research director for Inter-
national Minerals & Chemical Corp. and one of the
industrial students of this subject. He cites one mag-
nesium-aluminum alloy "as strong as three times its
weight in ordinary steel," but adds that, on an equal
volume basis, light metal alloys have not been developed
to equal the strength of steel. Furthermore, new steel
alloys may lower the weight of metal required per unit

of strength. It will be a race, Manning thinks, between the cost of light metal and steel alloys and a race to increase the strength of each in proportion to weight. Technical discoveries may give temporary or lasting advantages to one or the other.

Steel, for example, has shown a tendency to counter-attack in markets previously blitzed by the light metals. Steel streamliners were being sold before the war in direct competition with the shining new aluminum models, which first rolled out in 1933. A recent development in aircraft engineering has been the hollow steel propeller blade, designed to replace the generally adopted forged aluminum kind.

On the subject of steel-aluminum competition, Charles F. Kettering, of General Motors points out that steel airplanes may be produced before aluminum automobiles, and he thinks they will be.

Steel visualizes big new markets in its own field. By fabricating lightweight sections, some steel executives hope to sell an extra ton of steel for each new postwar housing unit. A goal of 1,500,000 units a year for the first ten years of peace is envisioned by executives of United States Steel Corp. That would provide a new market for steel exceeding the present tonnage of the entire aluminum industry. At least one important steel research project is aimed at this market.

Nonferrous Rivalry

In the automobile industry, the light metals will continue to compete with zinc for such pressure die castings as are used in carburetors, and for fixtures and hardware. In general, the expected surplus of light metals immediately after the war will be a threat to the building hardware, gadget, and transportation equipment fixture business of both copper and zinc, and their combination in brass. However, aluminum is not expected to nose copper out of the red metal's primary market, the electrical industry, although aluminum and steel power lines will compete for one section of that market. Nor is it expected to take over the jobs on which zinc has been specified for its special properties of corrosion-resistance, or to make a haul of the 1,000 or so items such as locks and clockwork where machinability has been a deciding factor in favor of brass.

In uses where the light metals could substitute for copper, zinc, brass, or other nonferrous metals, price and "ultimate cost" will be important considerations. The nature of this competition also may be influenced by the application of plastics. If aluminum could replace brass in door knobs, why not a cheap cast iron door knob with a plastic coating? The factors of competition between the metals as such, and between metals and plastics, are so involved that the experts hesitate to jump to any final conclusions regarding the outcome.

When it comes to postwar production of the light metals themselves, price competition of one kind and another may force the abandonment of some of the war baby plants now in operation. Power cost or labor cost differentials, specifically, may decide the issue of scrapping or operating individual plants.

At present, wage differentials do not appear significant,

but the range of power rates is another story. Power rates paid by Alcoa, for example, range from 2¢ a kilowatt hour in Tennessee to 7¢ at one plant in New York. The higher rate is explained by the necessity of getting aluminum production quickly; both time and copper supply for transmission lines being short, the government's newest aluminum plants were spotted close to large sources of electric power—in this case, close to the largest center of population. For the purposes of production, availability of power is more important to the light metals industry than power rates. The war end inevitably would reverse this abnormal logic, because power is the normal yardstick of production cost for electrolytic aluminum and magnesium. For every dollar invested in aluminum producing plant at a representative location, another was invested in power plant

—And the Government?

In adding up their future prospects, light metal producers find that one of the biggest uncertainties about postwar competition is political uncertainty. Will the government keep the aluminum and magnesium plants it owns, or turn them over to private industry? If they are to be sold—and their present operators have no options on them—then on what terms?

The government has not committed itself to sell at all. Its majority interest in light metals production conceivably might expand rather than dwindle after the war. If it should decide to stay in basic industry, the light metals would provide a reasonably comfortable berth already feathered with \$1,500,000,000 of public money. If there is a disposition to socialize industry, where is there a more likely starting point?

The light metals producers have been asking themselves a good many such questions lately. But, as to questions of future demand, they appear to be more concerned about the level of industrial activity than with problems of competition between companies and between metals. They know that, if all the metal industries keep busy, each will make business for the other, even as each seeks to take business away from the other.

The level of industrial activity, in turn, depends upon such uncertainties and intangibles as the outcome of the war, the terms of the peace, public confidence in the future, and government policy.

In this outlook, there is one thing certain: The laws of evolution and change will continue to work. Against them, the light metals exhibit a light degree of inertia.

REPRINTS AVAILABLE

Copies of "The Light Metals," latest in the series of periodical Business Week Reports to Executives, will be available in reprint form. Single copies of reprints will be mailed to Business Week readers upon request without charge. Additional copies will be billed at the rate of 20¢ apiece. On orders of eleven or more, quantity prices will be quoted on inquiry. Orders for reprints should be addressed to: Willard Chevalier, Publisher, Business Week, 330 West 42nd Street, New York 18, N. Y.

HOUSING

Flexible Rents

Federal housing projects pay their own way by boosting rentals up to OPA maximums as tenant income rises.

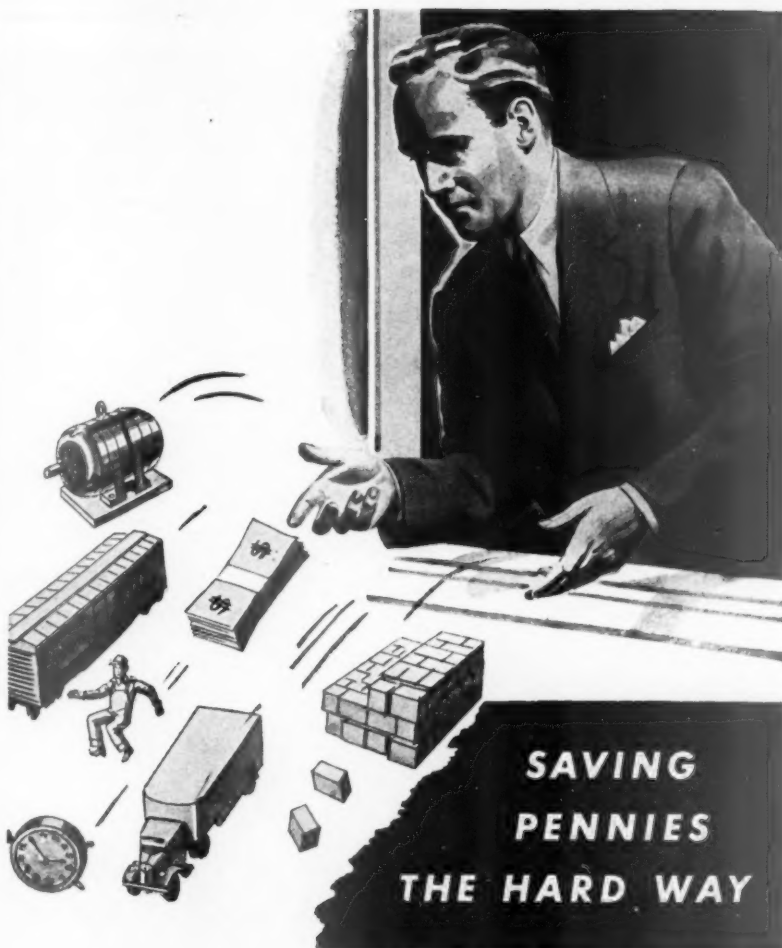
One person who can still raise rents and not tangle with the Office of Price Administration's rent department is Uncle Sam—or, more specifically, the federally subsidized local housing authorities which operate low-rent projects. Before the war, housing authorities evicted tenants who waxed overprosperous. Generally, any family whose income passed \$1,200 or \$1,300 a year had to start looking for somewhere else to live.

•No Place to Go—But with wartime prosperity, the number of families eligible for subsidized housing dropped off in many areas. And in crowded cities, evicted families wailed that they had no place to go; they had "earned" themselves out of house and home. So local housing authorities are letting them stay but raising the rent with OPA's blessing.

Most housing authorities have revised their graded rent schedules, so that a family's rent rises with its income until it reaches the maximum OPA allows for equivalent private housing. Trumbull Park Homes in Chicago provides an example of how the revised schedules work. Here a family earning less than \$900 a year pays \$17 a month for a five-room apartment. If the family's income jumps over \$900 (but not over \$1,200), the rent rises to \$22. It keeps rising in hops of a few dollars each, until a family earning \$3,000 pays \$52 for the same apartment.

•Average Income Doubled—An idea of how much extra income the war has brought tenants of some low-rent projects is furnished by Ramona Gardens on the east side of Los Angeles, operated by the Los Angeles Housing Authority. The 610 tenants in Ramona Gardens have been paying an average rent of \$16 a month, based on their average annual income of \$800.81 several years ago. But this month a revised rent schedule goes into effect, and the average rent jumps to \$26—family income is now averaging \$1,679.28 a year.

When there are vacancies in low-rent projects, authorities are giving preference, in this order: to incoming war workers, to war workers living in the area, and to low-income families that aren't doing anything for the war effort. The needier war workers get first shot at vacancies, but a shipyard worker earning



YES SIR! He saves a few cents by using shipping boxes not engineered to stand up under war-time traffic. What happens? He throws man-power, materials, machines, time, money, and transportation facilities out the window!

Figure it out for yourself. Your product was never more valuable from a production or distribution standpoint. Damage in transit, caused by war-loaded carriers, inexperienced personnel, and equipment shortages, was never more threatening. Careful packing and proper sealing were never more economical.

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\$1,500 a year comes before a household earning \$900.

● **Paying Their Way**—As a result of the revised rent schedules, many projects are paying their own way for the first time. This year 120 housing authorities will pay local governments \$500,000 in lieu of taxes (federally financed, the authorities cannot be taxed). Last year they paid \$187,000.

Allowing rents on federally financed housing to rise while private landlords were frozen was one of the many policies that got OPA's rent department into trouble with Congress, resulting in investigation by the Smith committee (set up by the House to investigate "acts of executive agencies beyond the scope of their authority"). The rent department isn't seriously bothered by complaints. It merely points to the committee's admission in its report, issued last month, that "rents have on the whole been successfully stabilized and inflationary increases prevented as to this element in the cost of living."

● **Injustices Corrected**—OPA considers that many of the bureaucratic injustices complained of in the Smith report already have been modified—for example, liberalization of the requirement of a heavy down payment before a landlord can sell out over a tenant's head. To answer committee charges that it is over-staffed, the department cites a reduction in personnel from 6,336 last November to 3,600 in June. Prize rabbit in OPA's hat is figures showing that, between the beginning of 1939 and the end of 1942, net operating income of apartment houses increased 31%, of smaller dwellings, 45%—in other words that landlords are prospering despite the exigencies of rent control.

Sun Heat Tested

Libbey-Owens-Ford is studying use of natural radiation through extragenorous windows on southern exposure of house.

The idea of using the sun for residential heating in cold weather is said to date back 3,000 years to the ancient Chinese, who built windows facing south and protected them from the summer sun by overhanging eaves. As a contribution toward modernizing this idea for postwar home builders, Libbey-Owens-Ford Glass Co. recently published results of an Illinois Institute of Technology study the company subsidized to obtain useful data on a six-room, one-story frame house in a colony of "solar homes" near Chicago (BW—Dec. 27 '41, p. 42).

Sealed glass panels provided extragenorous windows on the south (front) side of the test house, giving a spacious



W hite collar Crisis —

The clerical manpower (and womanpower) shortage is no longer news. What *you're* interested in is: "How can I increase my office and plant production... *in spite of* a weakened office staff?"

Here's how: First, let a Remington Rand Systems and Methods Expert analyze your office and plant records and routines. *Then*, follow his advice to the letter, for he's a past master at streamlining production methods from the initial planning to final delivery. He has increased production as much as 50% for other organizations with depleted personnel. Turn him loose on *your* headaches!

He may recommend the installation of time-tested Kardex Visible Systems whose exclusive Graph-A-Matic signals give you an instantaneous, *accurate* picture of where you stand *from day to day!* It's your "seeing eye" insurance against understocking, overstocking, labor-wasting bottlenecks and falling afoul of strict Federal regulations. It keeps you with or ahead of the toughest production schedules.

Or he may suggest Variadex Filing Systems, with priority-free wood cabinets, to make your files fool-proof, your papers instantly available. Possibly he may be able to point out how even the greenest of new

help can be swiftly trained to perform like seasoned veterans.

Whatever the Remington Rand Technician's findings, his carefully-considered recommendations will *definitely* increase productivity in your office or plant. More than that... *you will have established a perfect set of controls* to assure peak efficiency in every department, every operation.

You have the problems... *he* has the answers. Call him in for a non-obligatory consultation *today!* Write, wire or phone our nearest Branch Office (it's probably listed on the Yellow Pages of your local phone directory).

REMINGTON RAND
BUFFALO 3, NEW YORK

Smooth as polished glass
to the touch... yet



*cuts like
shark's teeth*

IT'S UNBELIEVABLE—these fast cutting edges with needle-sharp teeth—harmless to a finger, yet readily cut through any hard, brittle non-metallic material!

DI-MET diamond abrasive wheels are a comparatively new tool available to industry today. They cut, not by the usual projecting teeth of common saws and cutters, but by means of minute diamond particles firmly embedded in the wheel periphery. DI-MET wheels are safe—will not crack or shatter—can be used on any machine having adequate spindle speeds and suitable methods of feeding the work.

Applications of DI-MET wheels begin where exceptional hardness of workpieces causes other cutters to fail. Industry today is finding hundreds of new uses for DI-MET diamond wheels in milling, grooving, slicing, facing and cutting-off such materials as glass, quartz, porcelain, ceramics, steatite asbestos-cement, marble, tile, glazed face brick, vitreous compositions, etc.

If your job requires economical cutting of non-metallic* materials—get in touch with DI-MET. Suitable types and sizes of wheels are made for a wide range of applications.

*DI-MET diamond abrasive wheels are available in copper, steel and resinoid bonds for use on non-metallic materials. Resinoid bonded wheels, however, are extremely efficient for slicing, grooving and edge sharpening metallic carbides as well as non-metallic substances.



atmosphere to living room, study, and dining room.

• **Indoor Sun Bathing**—Outstanding favorable conclusion that could be drawn from the study, and one on which Libbey-Owens-Ford may capitalize later, is that owners of the test house found the sensation of basking in the sun indoors on cold winter days "a pleasant one."

Other results of the study gave the impression that the solar home has not yet graduated from its development stage. Large windows called for curtains against snow-reflected sunlight glare; summer temperatures in south rooms were higher than in north rooms; winter temperatures in the south rooms frequently went too high because of a time lag in controlling temperature of the hot water in the heating system. However, the test house was held to be more

comfortable otherwise than ordinary houses, in that ceiling temperature was consistently below floor temperature, because hot water pipes were embedded in the concrete floor slab.

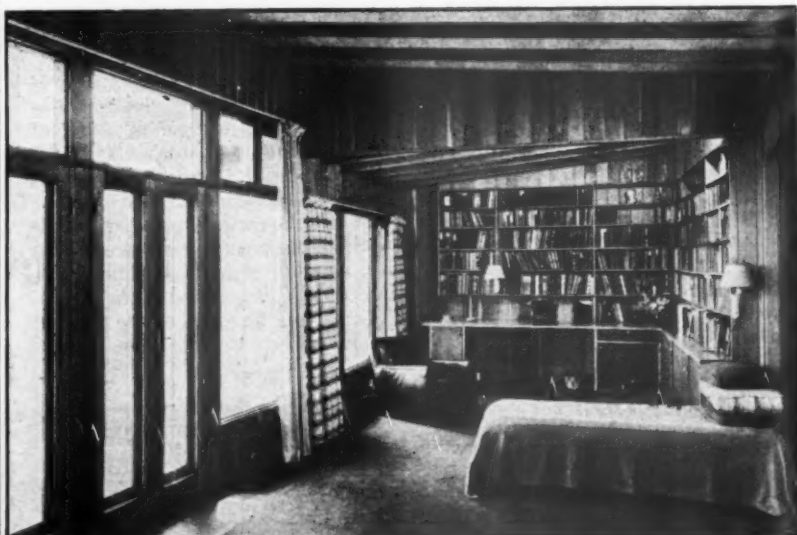
• **Fuel Savings Light**—Expected savings on gas bills were not fully realized, the report said, but this might be corrected by redesigning the heating system to utilize fully the available solar heat input. (One corrective might be a separate heating unit for each room.) Heating cost for the year was placed at \$136, including power cost for the circulating hot water pump, but not including a \$51 gas bill for domestic hot water.

Another problem not discussed in the report but a matter of concern to some devotees of solar heat is that of fading fabrics. Many rug, drapery, and upholstery dyes are not sunfast.



People who live in "glass houses" enjoy warm winter sunlight and cool summer daylight, according to reports on a Libbey-Owens-Ford experiment with solar heating. Chicago test

homes have southern exposures paneled with glass which admits low, slanting rays (above) of the winter sun while overhanging eaves shade the glass (below) during summer months.



DOWN ON THE FARM OF TOMORROW



DESIGNERS who will do much of the advanced thinking for industrial America tell us that even tractors and other farm implements of tomorrow will take on new forms. Such modern designs will receive the careful study of the Bohn engineering and metallurgical staffs. Bohn research has made many important contributions, particularly in the transportation field. Bohn is the only volume operator in the world specializing in aluminum, magnesium and brass products. This is a unique service which, when peace comes, many manufacturers can use to advantage. Remember the name Bohn.

BOHN



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WAR
BONDS

BOHN ALUMINUM AND BRASS CORPORATION, DETROIT, MICHIGAN

GENERAL OFFICES—LAFAYETTE BUILDING

Designers and Fabricators—ALUMINUM • MAGNESIUM • BRASS • AIRCRAFT-TYPE BEARINGS



"Tune-Up" That Car, Truck, Tractor or Bus Today



**RISLONE
AND
KARBOUT**
are made by the
makers of World-
Famous Shaler
"Hot Patches",
the safest tube
repairs known.

HELP conserve our national supply of oil and fuel so that adequate supplies may be available at all times for our Armed Forces.

Stop the waste of fuel and oil caused by improper functioning of the moving parts of the engine due to sticking valves and piston rings.

Gums from present day oils and fuels form on valve stems, in the guides and piston ring grooves. A KARBOUT-RISLONE "Tune-Up" treatment absorbs these troublesome gums and "frees" sticky valves, restores lost compression and power, facilitates quick starting, assures "peak" performance and a quieter, smoother running engine.

Ask your dealer today about the KARBOUT-RISLONE treatment which will help save oil and fuel, and prolong the life of your engine . . . THE SHALER COMPANY, Waupun, Wisconsin, and Toronto, Canada.



WAR BUSINESS CHECKLIST

A digest of new federal regulations affecting priorities, price control, and transportation.

Truck Tires

To increase the supply of used and recapped truck tires, dealers with recappable truck tire carcasses in their possession may get truck-type camelback needed for recapping by applying to their OPA district offices. To speed the flow of tires to the dealer level, manufacturers may sell used truck tires to dealers without rationing certificates if the OPA district office gives its approval. (Amendment 46, Ration Order 1-A.)

Paper

Maximum prices for 53 grades of writing papers—representing 80% of the total tonnage in the writing paper field—and for certain other fine papers have been taken out of GMPR and reclassified in a new regulation, on the whole at the general levels prevailing hitherto. Higher prices are allowed on reduced basic weight paper produced to conserve the supply of fiber. On this type, an upcharge of 7 1/2% on the rag content and chemical wood bond paper involved is allowed for writing paper of 16 lb. to the ream (500 sheets). (Regulation 450.)

Another action removes from GMPR manufacturers' prices for 33 grades of groundwood specialty papers—covering types containing 26% or more of groundwood pulp, for use chiefly in printing and publishing—and gives them dollar-and-cents ceilings, for the most part at current levels. Ceilings for other grades are computed by applying price differentials between listed and unlisted grades from Oct. 1, 1941, to Mar. 31, 1942. Newsprint and certain other types are exempted. (Regulation 449.)

Dollar-and-cents maximums for manufacturers of book paper have been set up on the basis of two groupings—one for spot sales to merchants and all sales to the U. S. government or its agencies, the other for all other sales—at prices now prevailing, except for lightweight papers, on which some increase is allowed. (Regulation 451.)

Veneers

To assure box manufacturers of their normal supply of box veneer, supplies of which have dropped about 20% in recent months in the face of a rising need, WPB has set up a new order permitting a producer to make unlimited quantities of box veneer and, if he is in the business, of plane and marine veneer. He may not produce any other type of veneer during any quota period, however, unless he can meet his box-veneer quota. The first quota period is Aug. 16 to Sept. 30, 1943; thereafter the quota periods are calendar quarters. For the first period, a producer's quota is 25% of the amount he produced during the first six months of either 1942 or 1943, which—

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1943



Over There
it's a question in
every man's mind

**Industry is helping win the war...
Industry must help build a peacetime world**

After the war is decisively won...
what kind of world is essential for a just and durable peace?

This question is being asked today everywhere in the world. No expert is needed to tell you the answer.

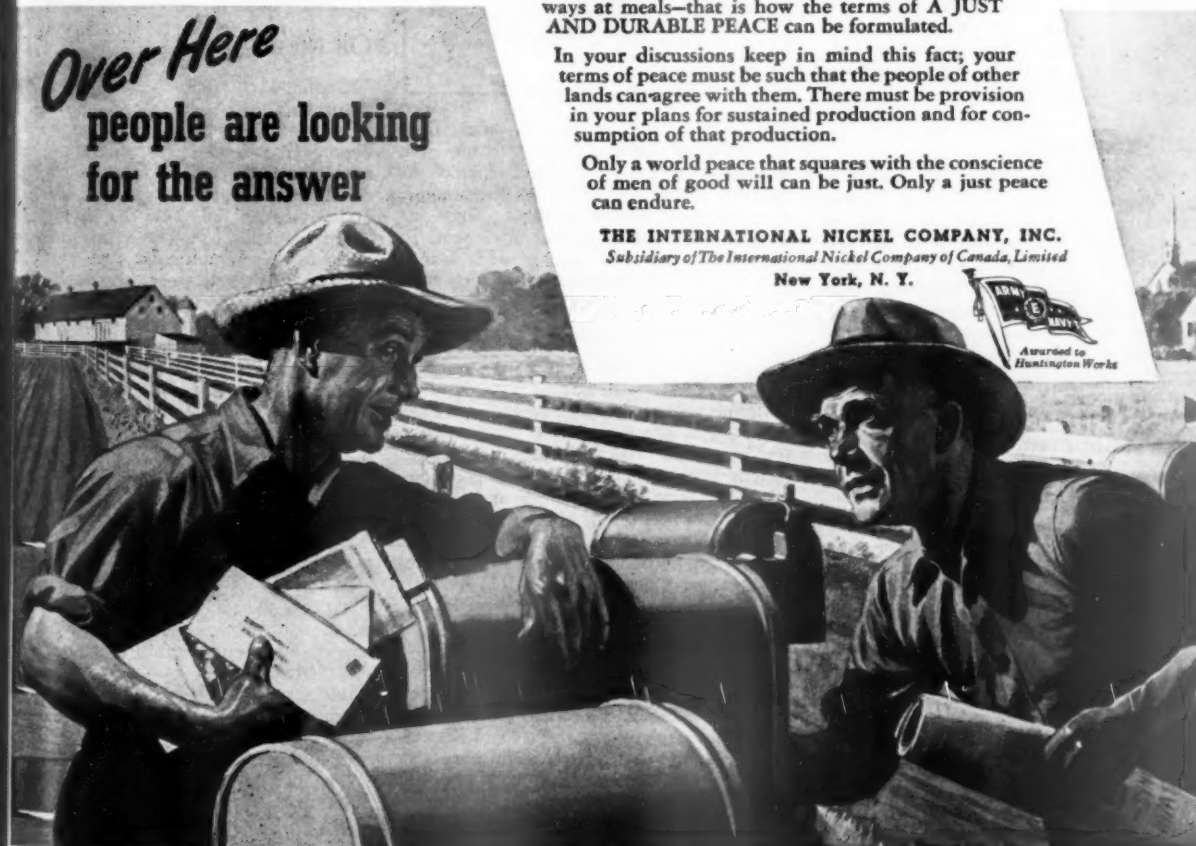
It must be a world as peaceful and neighborly as your own town; a world in which decent people can bring up their children decently. It must be a busy world where factories and farms are working and where there are jobs for all.

How can such a world be brought into being? The surest way is to think and talk about it. Full and complete discussions on the porches of this country, over its fences, in churches, schools, clubs, and always at meals—that is how the terms of A JUST AND DURABLE PEACE can be formulated.

In your discussions keep in mind this fact; your terms of peace must be such that the people of other lands can agree with them. There must be provision in your plans for sustained production and for consumption of that production.

Only a world peace that squares with the conscience of men of good will can be just. Only a just peace can endure.

THE INTERNATIONAL NICKEL COMPANY, INC.
Subsidiary of The International Nickel Company of Canada, Limited
New York, N. Y.



Over Here
people are looking
for the answer

ever period showed the larger production. For subsequent calendar quarters, his quota will be 50% of his base period production. This order affects only producers in whose plants box veneer has been made at any time since Jan. 1, 1942. (Conservation Order M-343.)

Dollar-and-cents ceilings for birch, maple, and basswood veneers, essential in the fabrication of plywood for airplanes, gliders, pontoons, and boats, have been established at approximately March, 1942, levels. Formerly prices for these veneers were under GMPR. (Revised Regulation 338.)

Furniture

To encourage household furniture manufacturers to effect additional economies in production, OPA will allow manufacturers to make not more than three minor changes in any one item without repricing it. Such changes, however, must not conflict with a manufacturer's established practice of granting price differentials for alternative features.

The ten allowable changes under this amendment include such alterations as simplification—not omission—of incidental trimmings; substitution of gimp for ornamental nails on upholstered furniture; change in finishing materials if substantially the same durability and effect are maintained; and other changes specified in the order. (Order 590, Regulation 188.)

Knit Goods

Knit outerwear, including sweaters, bathing suits, headwear, mufflers, and gloves, are deprived of nonfunctional frills by a WPB ruling that limits manufacturers to 50% of the number of styles of each item produced in 1941, or to a total of 20 styles, whichever is greater, for all articles except gloves and mittens. These are cut to 30% of 1941 styles, or to 16 styles, whichever is greater. (Order L-310.)

Cotton Ginning

To compensate for higher costs of operation, maximum prices for cotton ginning services have been advanced about 5%, or to 110% of the highest price in the base period (Aug. 1-Oct. 31, 1941), and charges for bagging and ties have also been raised so that each ginner's ceiling price per pattern may be at least 25¢ over cost though it must not total more than \$1.85 unless the earlier ceiling was higher. (Amendment 5, Regulation 211.)

Farm Equipment Repairs

More help for farmers is offered by WPB's action giving them priority for the repair of farm equipment. If a farmer submits a certificate of need at a repair shop, his order will be entitled to the same consideration as an order rated AA-5. This OPA amendment covers an additional list of 38 items and eliminates 26 items formerly covered (most of which are now under the new Farm Machinery & Equipment Order, L-257). (Priorities Regulation 19, as amended.)

Lighting Fixtures

Further controls have been established over the manufacture and distribution of fluorescent lighting fixtures by a WPB action



Aro Equipment Corp.
Cleveland, Ohio
Avondale Mills
Sylacauga, Ala.
Barlow & Seelig Mfg. Co.
Ripon, Wis.
E. J. Brach & Sons
Chicago, Ill.
Chicago Telephone Supply Co.
Elkhart, Ind.
Coast Centerless Grinding Co.
Los Angeles, Calif.
Ferro Machine & Foundry Co.
Cleveland, Ohio
Norman Ford Co.
Tyler, Tex.
Great Lakes Spring Corp.
Chicago, Ill.
Infilco, Inc.
Chicago, Ill.
Le Roi Co.
West Allis, Wis.
Micro Switch Corp.
Freeport, Ill.
Nash-Kelvinator Corp.
Lansing, Mich.
National Union Radio Corp.
Newark, N. J.
The Pfaunder Co.
Elyria, Ohio

(Names of winners of the Army-Navy and Maritime Commission awards for excellence in production announced prior to this new list will be found in previous issues of Business Week.)

that permits the production, after Dec. 1, 1943, of "nonindustrial" fixtures for office and drafting room use, subject to specified weight limitations on the amount of metal used in making them. Some industrial types are prohibited after Sept. 8, 1943, and sales of fixtures between manufacturers and distributors are forbidden after Sept. 1 without rated orders. (Order L-78, as amended.)

Gasoline

Beginning Aug. 16, the emergency mileage reduction in effect since May 27 was lifted for buses and taxicabs operating in the eastern gasoline shortage area. This action, affecting about 30,000 buses and 23,000 taxicabs, is the result of the increase of 14,000 barrels daily allotted for necessary commercial transport operators in the East. (Revocation of General Order ODT 39.)

Alcohol

To improve control over distribution of ethyl alcohol used for pharmaceutical and industrial purposes, allocation has been ordered. Originally, the use of alcohol was cut by fixed percentages for certain purposes, while full requirements for most essential uses were allowed; thus, each manufacturer was permitted to use 50% of the amount he employed in the base year ended June

30, 1941, for toiletries and cosmetics, allocating the distribution each quarter greater flexibility will result. Strict control will apply to all alcohol delivered to persons using 3,500 gal. or more a quarter. Special provision is made for the delivery of ethyl alcohol and rubbing alcohol to hospital-licensed physicians, holders of prescriptions, wholesale and retail druggists, manufacturers of rubbing alcohol compounds, and manufacturers of antifreeze preparations. (Order M-30, as amended.)

Diamonds

Diamonds weighing one carat or less, as well as the mountings in which they are set, are exempted from price control by an OPA amendment that eliminates the qualification of weight for diamonds on the list of precious stones, since it has been found impractical to differentiate among diamonds on the basis of weight alone. (Amendment 23, Revised Supplemental Regulation 1.)

Wool Fat

Wool fat, in demand by war industry as a rust preventive and leather processing agent, has been placed under strict control beginning Sept. 1, under a War Food Administration program that requires industrial consumers and refiners to apply for monthly allocations directly to the Food and Oils Branch, Food Distribution Administration, Washington 25, D. C., immediately for September allotments, and for each succeeding month by the tenth of the preceding one. A single allocation will be made to producers for distribution to druggists and cosmetic manufacturers. (Food Distribution Order 76.)

Oil Meals

Commodity Credit Corp. has received authorization to sell cottonseed oil meal, soybean oil meal, peanut oil meal, and their byproducts at maximum prices previously established for processors for sales of the commodities other than those owned or under contract on July 31, 1943; CCC already has authority to charge maximum prices for sales of products owned or under contract on that date. Amendment 1, Regulation 443 also changes the method of determining delivered prices in Central Freight Assn. and Eastern and New England Trunk Line Freight Assn. territories to conform with trade practice and with the basis on which CCC's support price program this past year was established. (Amendment 1, Regulation 442, for peanut oil; Amendment 1, Regulation 443, for soybean oil; Amendment 1, Regulation 444, for cottonseed oil.)

Imported Goods

To ease the squeeze on importers, wholesalers, and retailers resulting from higher import costs—amounting to about 30% since March, 1942—ceiling prices of imported manufactured goods may be increased within limits. To an importer's—or a wholesaler's or a retailer's—total landed costs may be added not more than 75% of his markup, or the identical dollar-and-cents markup established by him during March, 1942. A manufacturer who uses imported materials may petition OPA for

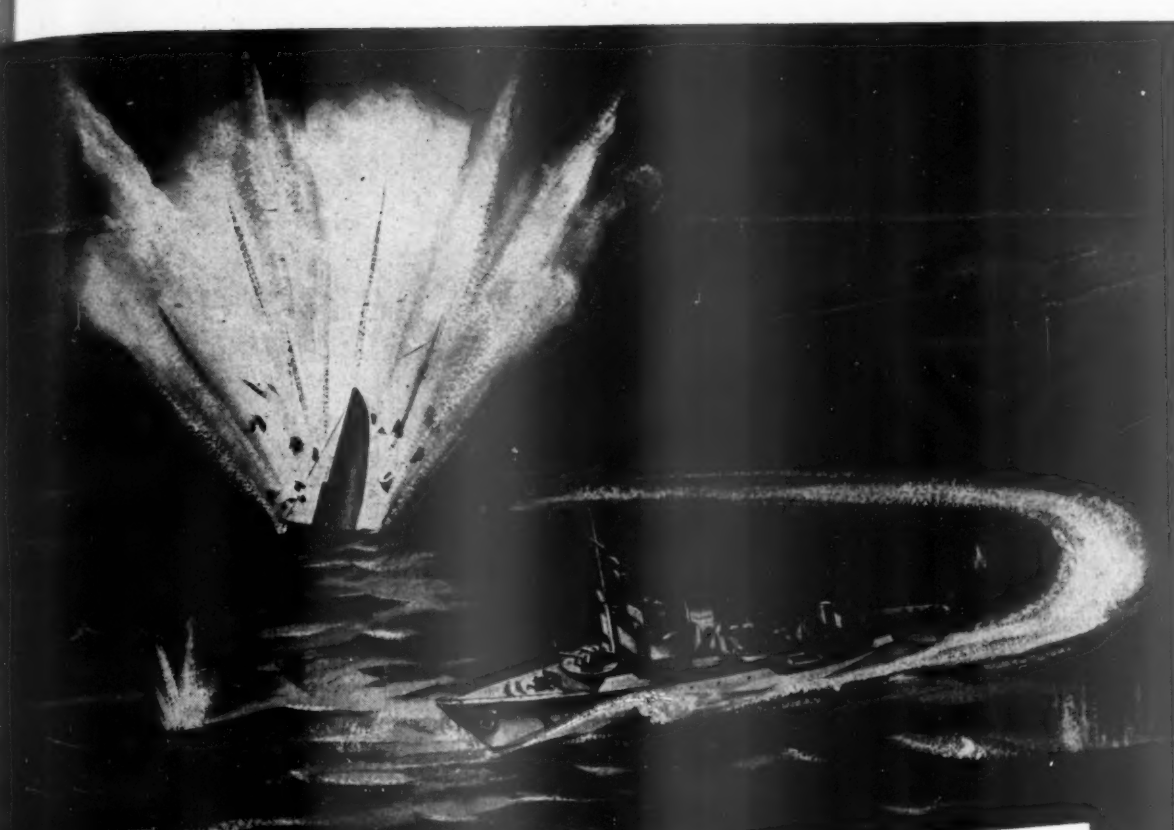
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The Iron Men of HENDY are building reciprocating steam engines, for both the Navy's new, corvette escort vessels and liberty ships; steam turbines and reduction gears for the larger cargo-carrying ships. These are all being manufactured in modern shops, built and fully equipped to produce large units in volume, by streamlined, mass-production methods.

Prelude to SAFETY OF THE SEAS..

This Jap sub had a "blind date" with one of the Navy's newest fighters but didn't know it until his inquiring periscope showed above the waves... then a quick pass... a terrific explosion... and there was one less sea marauder for the cargo ships to worry about.

That's the dramatic side of the war... the part that helps to inspire the entire Hendy organization to build the engines for these speedy escort craft... better and faster. There's a lot of drama too in building engines, especially when you are building for both fighting vessels and cargo ships. We like to think that every hour we save in the foundry, in the machine shop, or on the assembly line brings final victory that much closer... brings that day nearer when cargo ships will truly be the United States Merchant Marine, carrying peacetime products to every port in the world.



JOSHUA HENDY IRON WORKS
ESTABLISHED 1856

SUNNYVALE-CALIFORNIA

Divisions: POMONA PUMP COMPANY
CROCKER-WHEELER ELECTRIC MFG. CO.



Manufacturing Plants: SUNNYVALE, LONG BEACH, POMONA
and TORRANCE in CALIFORNIA • AMPERE, N. J. • ST. LOUIS, MO.
Branch Offices: NEW YORK • WASHINGTON • PHILADELPHIA
PITTSBURGH • CHICAGO • ST. LOUIS • SAN FRANCISCO • LOS ANGELES

Common-Sense Economics

Few of us question the extent of the pent-up demand for goods that will follow peace in this country. It probably won't take very long for that demand to spread over the world.

The natives of Papua are seeing, for the first time, "houses that fly". They are finding out that a bulldozer will clear more bush in a day than a thousand hand-wielded machetes. They have seen man-made ice that preserves food and cools drinks—on the equator.

Such things, and hundreds like them, we can make so good and so cheap that the people of the world can't afford to do without them.

It won't be much of a job to find ways and means for trading with the whole world, if we can make what this world wants good enough and cheaply enough.

That will be in part the responsibility of Acme-Gridley Multiple Spindle Automatics—cutting more metal parts, of higher quality, in less time, at lower costs.

Our own economic thinking and planning for the future is pointed in that direction.



ACME-GRIDLEY AUTOMATICS
maintain accuracy at the
highest spindle speeds
and fastest feeds modern
cutting tools can withstand.

The **NATIONAL ACME** *Company*
CLEVELAND • OHIO

increase in the price of his product if increased cost will preclude his further of the material. However, importers of manufactured goods, who may include transportation costs, insurance, etc., as part of their total landed costs, may not include increases in foreign prices made by foreign exporters after Apr. 30, 1943. This limitation holds for importers of industrial materials as well. (Maximum Import Price Regulation.)

Wooden Containers

Wooden shipping containers for dressed chickens and turkeys have been standardized as a further effort to conserve manpower and material. The number of wooden shipping boxes for dressed chickens is reduced to four, and for dressed turkeys to four. (Order 232, as amended.)

Other Priority Actions

Ration points will not be required for unlabeled shoes with soles containing a small percentage of reclaimed rubber or with soles made from low-grade friction material, if such shoes were shipped from the factory after Aug. 15, 1943. (Amendment 32, Ration Order 17.) . . . The use of tin and terneplate in the production of hand dusters and sprayers for agricultural use has been permitted by WPB's Supplementary Order M-21-e, as amended. . . . No alkyl resins containing tung oil (China-wood oil) will be authorized for general use on or after Sept. 1, except for specified purposes. (WPB Order M-139.) . . . Quotas for milkweed floss (BW—Aug. 21 '43, 1948) have been set by the Dept. of Agriculture and WPB at 1,000,000 lb. for 1943; 3,000,000 lb. for 1944; 5,000,000 lb. for 1945, to replace kapok as filler. . . . Petroleum Administration for War's Recommendation 40 has been amended to remove chlorine from the critical materials used as additives in the manufacture of extreme pressure lubricants.

Other Price Actions

To insure an adequate supply of frozen fruits to increase the production of jams and jellies, the point value of frozen fruits sold in containers of more than 10 lb. is raised twelve points per pound from their present value of six by Amendment 18, Revised Supplement I, Ration Order 13. . . . Growers' prices for figs for canning and drying have been established at figures averaging an increase of \$60 per ton over 1942 for dried figs and \$45 a ton for adotta figs. . . . OPA's Regulation 448 sets dollar-and-cents maximum prices for canned clams at a slight increase to wholesalers and retailers who sell them under trade markups. . . . Domestic and imported cabbage seed are affected by OPA's Regulation 455, which freezes the price of each seller from farmer grower to wholesaler at the highest prices for each variety of the 1943 crop between Feb. 15 and May 16, 1943, and provides a markup formula for retail prices. . . . The 1943 Pacific Coast crop of hops has been placed under price control by OPA's Revised Regulation 279 at levels ranging from 74¢ per pound for seedless hops to 64¢ per pound for seeded hops, f.o.b. the grower's farm, warehouse, or place of business.

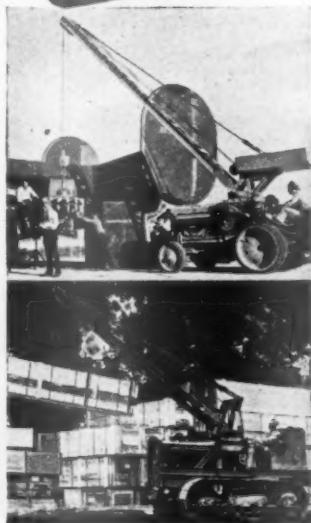


Official Navy Photo

Free-Roving
Tractor-Footed
**ROUSTABOUT
CRANES**

**SPEED
HANDLING**

**of War Materiel, where
it's made, where it's used**



Full boom swing

THE HUGHES-KEENAN CO.
505 Newman Street, Mansfield, Ohio

ROUSTABOUT CRANES

By Hughes-Keenan



Speed Handling Specialists Since 1904

THE WAR—AND BUSINESS ABROAD

Between the Devil and the Deep

German business man, his cartels swallowed up by Nazi supercartels, is on the spot for his collaboration. He has little choice except to stick and hope for the best.

The United Nations have numbered the days of Axis Europe. Now the German business men who brain-trusted the war effort—and the Nazi Party—are pondering their fate.

Contrary to popular assumption, business men who headed firms in pre-Hitler Germany have remained in the blue book of directors. Among the 25 largest corporations in 1939, 499 of the 545 top officials had held important jobs in those firms as far back as in 1932. Among the 43 largest corporations, 101 of the 104 board chairmen and vice-chairmen had held executive positions in 1932.

● **Profit—and Loss**—The German business man who backed National Socialism and its ill-starred leader in 1933 has not failed to profit from that partnership, but he has lost more and more of his executive autonomy, and his paper profits are rapidly depreciating in value as the last hope of eventual victory dwindles.

The cartels which topped German industry for decades have recently bowed to supercartels created to meet the exigencies of war, and their basic principles have changed. The business man had to keep step. As the political philosophy edged openly toward militarism, the Party gathered adherents from the ranks of management men who saw employment insurance in collaboration.

● **"Organized Selfishness"**—The recent history of German cartels typifies the changed role of the business man. Created as a protection against competition, the cartels became, according to one Nazi economist, "organized selfishness." Soon after 1933, all state protection for consumers disappeared, and the cartels became the center of attention as instruments of the government's military policy.

The state took over control of prices, supplies, foreign trade, wage rates, interest rates, capital market, and direction of investment. For the business men, compliance was profitable, despite loss of authority, because the government had many favors to dispense.

● **Dependent on Victory**—Profits were substantial before the war. They have since been curtailed, taxed, or postponed. Permission to exploit resources or to purchase industries in occupied territories went to cooperative industri-

alists, but realization of the assets depended on German victory. Dissolution of Axis Europe and the promised unscrambling of property transfers will leave the business man only bomb-shattered plants at home and fear of punishment as a war criminal.

In the war phase, cartels directed their efforts toward expanding production, and any cartel attempting to continue its traditional function of restricting output of goods and thereby protecting price and profit was punished. Some cartels in nonessential industries were disbanded.

The final stage was reached when Berlin decided that even cartels could be rationalized. The result was the formation of supercartels or Reichvereinigungen, replacing or subordinating cartels, as such, in the economic life of Germany.

● **Collaboration, or Else**—For the individual business man, the change had personal implications. He either went

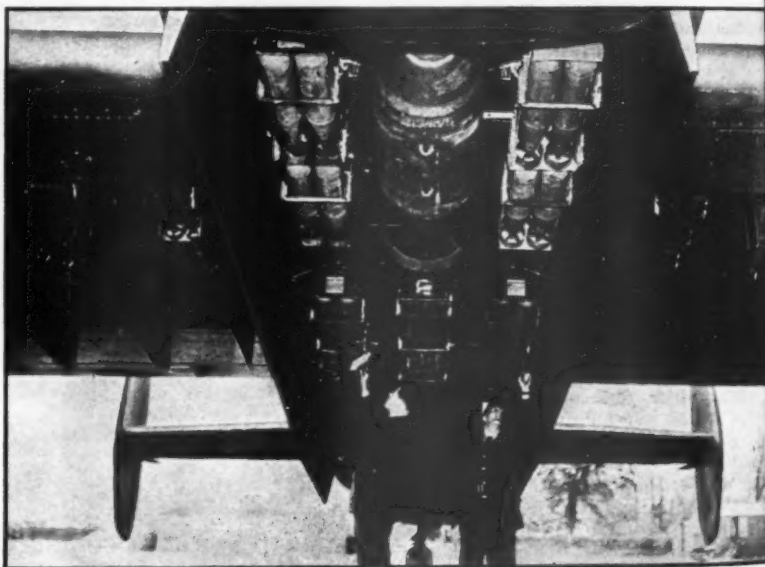
out of business—or out of the country or became a cog in one of the supercartels.

On top of the Reichsvereinigungen were party-policy directors, heavy shareholders in the biggest enterprises, swinging their weight for the political idea they originally espoused. The corporations absorbed small corporations, capitalizations were juggled to escape excess profits taxes, and in acute war shortages hit, these displayed their new power and wealth in indulgence in elaborate personal luxuries.

But the power of German business men as individuals was trimmed. The cartels not only lost control of price distribution, and volume of output, but also (since the Gemeinschaftswerke of Sept. 4, 1939) have been under the compulsion to expand, curtail, close down, or to apply specified processes to production. By decree, the Minister of National Economy on Oct. 1, 1942, took over market control with power to dissolve or combine existing organizations and to regulate procedures.

● **How Coal Is Controlled**—Louis D. Eratzky, chief of the European Section of the Bureau of Foreign & Domestic Commerce, who has analyzed the cartel controls for the Dept. of Commerce and several of the war agencies has described their operation in mining.

The Reichsvereinigung Kohle extends supervision instituted by the Coal



READY FOR DELIVERY

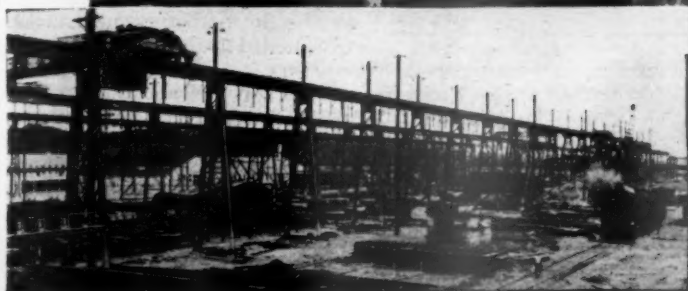
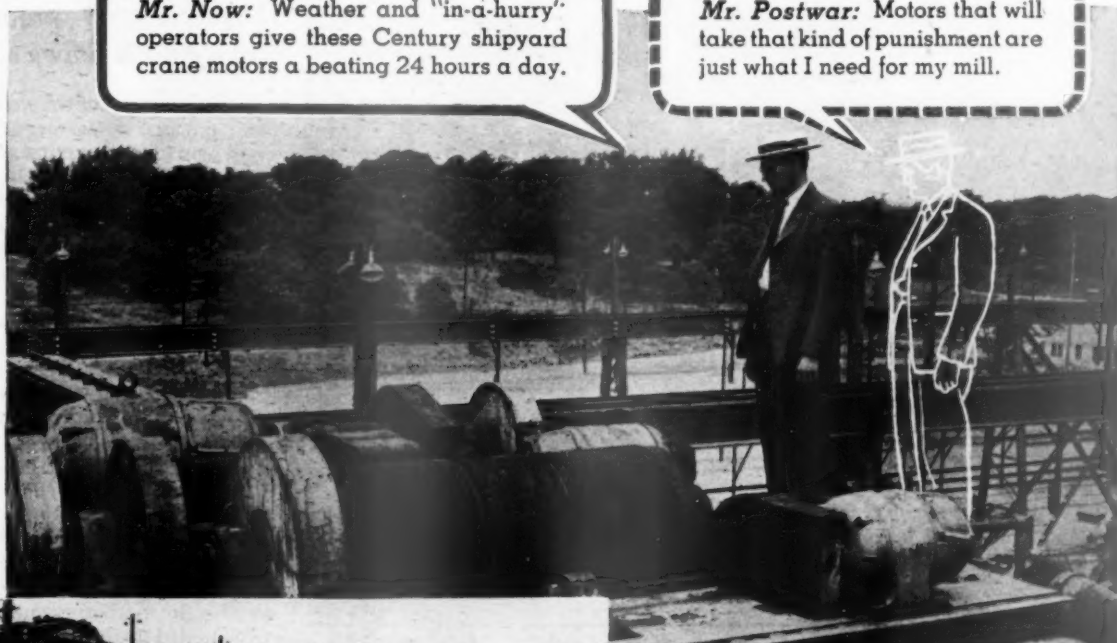
While technicians make last-minute checks of explosives and fuses, a big Halifax bomber poses for an unusual Axis-eye view of its bomb bay at an airdrome somewhere in England. Carrying six to eight tons of high explo-

sives and incendiaries, Halifax and Lancaster bombers are helping to block the Allied invasion path with no stop 2,000-ton raids on important German and Italian military targets. By comparison, the heaviest Nazi raid on Britain in 1941 unleashed only 4 tons of bombs.

Take a Look at TOMORROW—*Today!*

Mr. Now: Weather and "in-a-hurry" operators give these Century shipyard crane motors a beating 24 hours a day.

Mr. Postwar: Motors that will take that kind of punishment are just what I need for my mill.

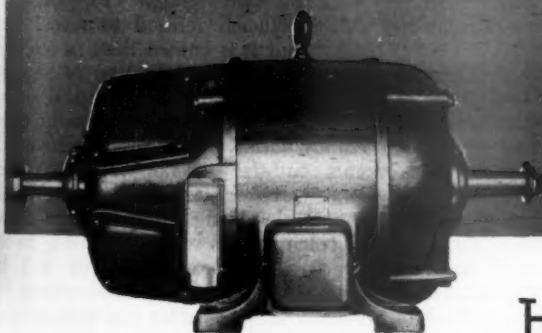


SUN, RAIN, SNOW,

**and the torturing
frequent starting and
reversing of impact**

loads prove the stamina of

**CENTURY
CRANE MOTORS**



**Century
MOTORS**

**One of the Largest EXCLUSIVE Motor &
Generator Manufacturers in the World.**

Here's a motor job that demands real stamina, 24 hours a day. In a well-known shipyard, Century Motors are installed on each of the cranes and hoists like that shown above. Exposed to the elements day and night, they stand up under the shock loads, frequent starts and stops and reverses imposed by the high speed, modern shipbuilding war program.

You can depend on Century today — and tomorrow.

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

330



ADDRESS UNKNOWN

Obviously glad their fighting is over, Italian war prisoners peel potatoes and generally perform KP chores in an Allied ship's galley. They are en route from captive assembly centers in

North Africa to permanent camps in an undisclosed country. If it turns out to be the U. S. they are headed for, they will join some 19,600 fellow countrymen and 45,000 Germans now in American stockades (BW—May 29 '43, p20).

of 1919. Under the act, designed to protect consumers and labor from injurious competition and to fix prices, wages, and working conditions, the whole industry was organized into eleven regional syndicates with the Reichskohlenverband supervising intersyndicate relations and representing the industry and trade in relations with the government.

In 1940, a coal commissioner was appointed by the Minister of National Economy, but in 1941 the Reichsvereinigung Kohle was formed with a committee headed by Paul Pleiger at the top. Pleiger is also head of the government control board for coal and general manager of the Hermann Goering Combine.

• **Captured Coal Anschluss**—Control in coal, as in other industries, does not materially affect the private financial controls of the industry or the dominance of the sales syndicates. The Rheinisch-Westfälische syndicate, which represents the distribution of about 80% of German coal, and the Upper Silesian syndicate handling most of the remainder are unchanged except that their scope has been extended by incorporation of some of the coal organizations in occupied countries.

In the cement industry, until 1940, four cartels—North, West, and South German, and the Hutten-Zementverband—dominated the field. In that year the Minister of National Economy created the Deutscher Zementverband uniting the four cartels, their affiliates, and other producers to work with sub-

ordinate associations, to represent the export interests of the industry, and to represent the industry in its relations with foreign producers.

• **Other Cartels Abolished**—The Zementverband absorbed the Slovak cement cartel and established sales agencies in Upper Silesia and Alsace-Lorraine. On Jan. 1, 1943, the Zementverband established a selling agency for all Greater Germany, abolishing all cartel agencies except those of the Hutten-Zementverband.

Reichsvereinigungen or Gemeinschaftswerke varying only in detail from the coal and cement organizations have been created in the hollow glassware, shoes, iron and steel, and synthetic textile fiber industries.

• **"Government Job"**—Throughout the reconstruction of the German war economy, the business man has found himself more and more in a semigovernmental position—his job is dependent upon his cooperation with regulations or with a higher industrial cartel or committee, or he is on such a committee at some level of authority and in constant association and consultation with bosses of the government and the National Socialist Party.

Just where the individual gets off when the German war machine breaks down is still a question. Right now he has no choice but to stick, on the chance that he will be forgotten in the purge of war leaders and overlooked by the economists who are trying to trace the scrambling of financial and corporate relationships.

Oil for the Allies

Recruiting campaign of California Arabian Standard to rehabilitate oil properties in Saudi Arabia draws a crowd

In the "help wanted" columns of the San Francisco newspaper last week appeared an advertisement signed by California Arabian Standard Oil Co. appealing for men, "wanted immediately" to work on its properties in Saudi Arabia. Specifically, Cal-Arabia wanted civil and mechanical engineers, mechanics, laundry and dry cleaning foremen, oil well rig builders, accountants, boilermakers, welders, machinists, and storekeepers.

• **Careerists Wanted**—"Air-conditioned facilities, excellent meals, hospital and medical care, and recreational facilities are provided without cost," the advertisement stated, adding as a warning that "the company wants employees who will consider foreign service as a career and is not interested in those seeking employment merely for glamorous travel, or higher wages." Men "not working in another essential industry" were invited to "come in and talk it over."

Much to the amazement of Cal-Arabia officials, the single advertisement brought responses from some 3,000 persons, including many women, apparently eager to go to Saudi Arabia to help rehabilitate the company's oil properties. By noon of the day the ad appeared the personnel office was swamped with applicants.

• **Long Development Program**—Cal-Arabia officials refused to reveal their plans, but it is known that, in addition to immediate rehabilitation of their oil properties, they have embarked on an ambitious long-range program in cooperation with King Ibn Saud for economic and cultural development of Saudi Arabia. For instance, much of the personnel now being recruited will be used to teach natives standard trades. In addition, an educational staff will be formed to set up a school system for natives as well as for children of Cal-Arabia employees.

A corps of physicians will be recruited to install medical systems, and the staff will be enlarged as fast as personnel is available. Another important phase of the program said to be of special interest to Ibn Saud involves recruiting of a staff of agricultural experts to teach natives modern farming methods, including improvement and enlargement of the country's wheat and corn crops.

• **Irrigation to Benefit**—A key part of the agricultural plan is rehabilitation and expansion of Saudi Arabia's irrigation system. For that reason, Cal-Arabia will search for water and develop wells on



PARTS *and the peace*

THE planes and ships streaming from America's industrial centers are not just implements of war. They are working parts of the coming peace—an economic and sociological peace wherein the freedom-starved peoples of the world will be united by ties of common interest, purpose, and transportation.

Airpower has bombed out distances: The fellowship of armies today sounds the keynote of international cooperation tomorrow. War materiel, exchanged so freely between nations, foretells of an expanding international trade in the future.

The men at the front will become

our economic and business leaders. Great names in war production will remain great names in the manufacture of peacetime products. By building trainer planes and making high grade parts for the world's fastest and best fighting and bombing planes, Fleetwings has earned its worldwide reputation.

And, while Fleetwings' production

records climb, the discoveries and developments of Fleetwings' engineers give exciting promise of peacetime application as well as immediate war use.

Whatever the trend, whenever the time comes, there will be no wasted time at Fleetwings. Signing off war and taking on peace will be just a matter of shifted emphasis.



It's the breath you exhale...



It's the "rise" in bread...



It's the fizz in soda pop...

**It's carbon dioxide ...
it's now a new industry!**

One-man pack raft carried by flyer. Instantly inflated by Kidde carbon dioxide cylinder, raft will keep pilot afloat, safe, for days.

Compressed and stored in cylinders, carbon dioxide is being put to work by Kidde in many fields. It's one of the fastest fire-fighters known. It's a powerhouse of energy quickly available in emergencies. The harnessing of carbon dioxide and other compressed gases forms a new industry, full of promise for the future.

Tracer-bullet-proof gas tank! Kidde makes explosive vapors harmless on fighting planes by filling tank with fire-killing carbon dioxide.

Phantom fire door! Some openings in industrial plants cannot be closed. Kidde curtains them with fire-proof carbon dioxide gas.

Walter Kidde & Company has devoted itself to the science of harnessing gases-under-pressure. War has greatly advanced the scope of this work. New uses are constantly being discovered, which will promote the comfort and safety of the postwar world.



WALTER KIDDE & COMPANY, INC., 822 MAIN STREET, BELLEVILLE, N. J.

a large scale, and many employees now being sought by the company will be engaged in that work.

No women will be hired for the present despite the flood of applications. Later, however, Cal-Arabia plans to employ women and also will permit wives and children of employees to join them in Saudi Arabia.

● **Shift in War?**—Cal-Arabia apparently senses an impending shift in the war's focus to the eastern Mediterranean and may hope to boost petroleum output from Arabian wells to reduce dependence of Allied armies in that area on supplies shipped from the U. S. and the Caribbean. It has been felt in Washington that equipment for such expansions might be approved by WPB in the interests of speeding victory.

CANADA

A Diplomatic Bow

Choice of Quebec locale for Roosevelt-Churchill talks seen as gesture of recognition for Canada's part in the war.

OTTAWA—Canadians are satisfied that the latest meeting of Roosevelt and Churchill was held in Canada to quiet notions that the Dominion was being bypassed in major decisions.

● **Functional Representation**—Canadian experts at the conference are known to have reflected Prime Minister Mackenzie King's attitude toward "functional representation" on United Nations agencies and policy-making bodies (BW—Jul.17'43,p46). It is an open secret that at recent meetings in Washington

\$40,000,000 POINT

Canadian industry escaped a \$40,000,000 boost in its wage bill this month by a margin of one-tenth of a point in the cost-of-living index. The index reached 117.9 in July (August, 1939, equals 100).

Restricted rise in the index confirmed the betting of Price Administrator Donald Gordon who had withheld additional price ceiling subsidies on the gamble that they would not be necessary to hold the line in Canada (BW—Jul.24'43,p53).

To prevent a wage bonus in October, new food subsidies are planned. They are certain to include meat and may cover fuels.



AXIS READY-TO-WEAR

In a Montreal clothing plant, a young Canadian girl checks the size of a blue denim uniform designed for the back of an Axis prisoner of war. The bright red circle, bisected by her tape, marks its wearer as a German or Italian captive and gives sentries an easy-to-see target. Trousers are marked with crimson stripes. Canada's big prisoner population has boosted the value of government textile purchases for all military purposes to around \$400,000,000 since the war began.

a Canadian official suggested that countries which made their war and relief contributions without compensation should have effective representation in United Nations councils and that those which were paid for their contributions should not.

Canada claims to be the only Allied nation giving aid to others without compensation and points to U. S. benefits under reverse lend-lease. Last year Canada gave Britain \$1,000,000,000 in supplies, much of which went to Russia and other United Nations. This year a \$1,000,000,000 mutual aid program is being tailored to Soviet, Chinese, and British needs in Ottawa by direct consultation with these Allies.

• **Greater Recognition**—Ottawa feels that these contributions, on top of Canada's Army, Navy, and Air Force activities, entitles her to greater recognition than has been accorded hitherto. As a result, the selection of Quebec as the scene for a high-policy conference is judged as a political bow to these sentiments which must now be followed by some forthright admission of Canada's role in the war.



MODERN *Genie*

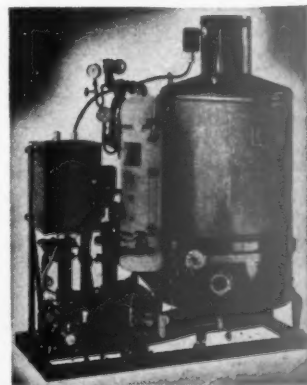
All the mythical powers of Aladdin's Lamp couldn't have produced a better answer to the Navy's requirements for compact, lightweight steam generating equipment than they found in Clayton Flash Type Boilers. Because they exactly "filled the bill," Clayton steam generator production was diverted overnight from commercial channels to shipyards building Navy vessels . . . and since then has been stepped up many times.

Using only one-third the space and weighing but one-quarter as much as conventional marine boilers, Clayton steam generators cook the food and heat the coffee, provide steam for distilling, sterilizing, heating, blowing the whistles, and scores of other vital services on fighting and patrol ships of fifteen different types. They come to working pressure in five minutes, automatically and instantly adjust themselves from full load to heating only a few gallons of water, deliver from 15 to 150 h.p. at operating pressures of 10 to 150 pounds.

Clayton boiler "magic" was thoroughly demonstrated by a long record of leadership in peace-time industry . . . since doubled and re-doubled in Naval service . . . and will again be available to industry when the war is over.

OTHER CLAYTON PRODUCTS

- Other Clayton products aiding our Armed Forces are Kerrick Kleaners . . . Kerrick Cleaning Compounds . . . Clayton Hydraulic Dynamometers . . . Clayton Steam Generators . . . Clayton Boring Bars and Holders.



Compactness of Clayton Steam Generators is evidenced by these dimensions of the 50 horsepower model: Length 5'2", width 3', height 5'10". Weight dry 1800 pounds.



PRODUCTION

New Era in Tin

Last of the old hot mills rolling steel sheet for plating to close Sept. 1; electroplating process gains rapidly.

When the last sheet of tinplate leaves the mills of the Washington Tin Plate Co., at Washington, Pa., on Sept. 1, the era of making tinplate by the hot-rolled process comes to an end in this country.

The cycle of changing from hot rolling to cold rolling for reducing the thickness of steel sheets destined for tinplate (most of it to be used for tin cans) was completed in the remarkably short time of 14 years.

• **A Second Major Change**—Suspension of business by the Washington firm, the country's last hand-operated, hot-mill plant, occurred as a second major cycle was well under way in the industry—the rapid introduction of the electrolytic method of tinning which may eventually supplant the hot-dip process, spreading the coat of tin two-thirds thinner on steel sheets to conserve present tin stockpiles after Japan's grab of two-thirds of the world's tin mines. Twenty-eight electrolytic lines, which may produce a third of the nation's tinplate this year, are in operation or under construction, virtually bringing the infant process to maturity in less than two years.

Speeded by the war's conservation program, the evolution in the tinplate industry, as epitomized by the closing of the 42-year-old Washington company, is the more phenomenal when it is realized that within a comparatively few years, changes were made in processes that had stood for decades. The art of coating wrought iron with tin was practiced before the year 25 A.D., but the tinplate industry is really supposed to have originated in Bohemia some years after the discovery of tin there in 1240 A.D. In 1640, the Duke of Saxony disguised an agent as a priest to obtain enough information from Bohemia to begin the manufacture of tinplate.

• **Imports Take Lead**—In 1874, the first three tinplate works were erected in the United States at Demmler and Leechburg, Pa., and Wellsville, Ohio. Two years later, the first attempt was made at Demmler to roll Bessemer steel into sheets, but European steelmakers got into quantity production first, and by 1880, foreign steel had largely supplanted domestic wrought iron in tinplate.

Unable to compete with the imported product, the United States plants withered, and it was not until 1891, a year after enactment of the McKinley tariff bill, that manufacture of tinplate was resumed at the three works. This country's tinplate output in 1891 totaled 11,189 tons, but a few years later, production began to spurt with the introduction of can-making machines. By 1929, peak tonnage of 2,077,673 was reached under the hot-rolled process.

• **Switch to Cold Mills**—From 1925 to 1930, continuous hot-strip mills for rolling steel slabs into sheets were developed, followed by the revolutionary cold mills which reduce hot-rolled strip to tinplate thickness without reheating. In 1929, only 0.2% of total production was cold reduced. From 1937 on, however, the changeover from hot-rolled was rapid. Cold-reduced tinplate provided better surface and drawing qualities, closer tolerances, corrosion-resistance, and a stiffness required by modern container manufacturing methods.

Meanwhile, hot mills were either being rapidly converted to cold reduc-

tion or going out of business. By 1941, 89% of that year's record tinplate production of 3,509,399 tons was cold reduced; by 1942, cold plate accounted for 94% of the estimated 2,650,000 tonnage.

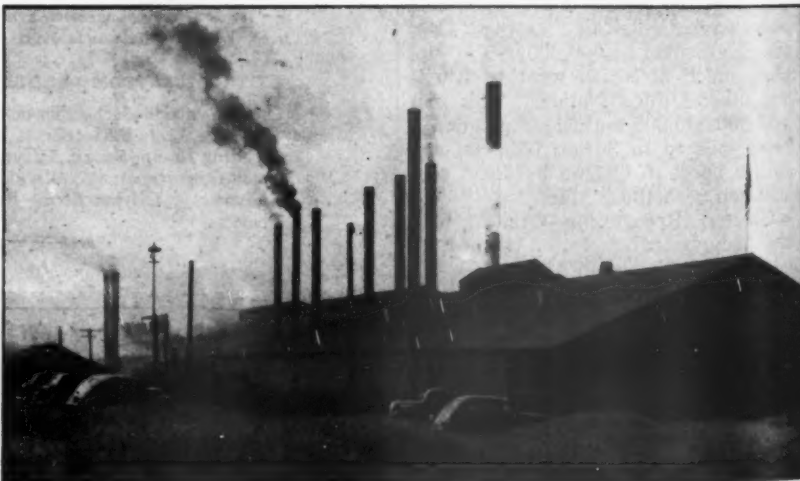
• **Last of the Hot Mills**—Up to now in 1943, cold mills have been producing at least 99% of the total output, with only the Washington mill holding out. This month, 74-year-old John F. Kraft, president of the Washington firm, regretfully informed his 500 employees that war restrictions and cold competition would force him to close the plant.

While cold-rolled sheet was taking over the field, war spurred acceptance of electrolytic coating. Time-honored process of applying tin to the steel surface is to dip each sheet into molten tin, giving it a protective cover some 90 millionths of an inch thick.

• **The Saving in Tin**—Normally, hot dipping adds 1½ pounds of tin to the surface of 100 pounds of sheet to make one "base box" of tinplate. Now, however, a government conservation decree has reduced the coating to 1½ pounds.

The United States, a "have-not" nation as far as tin is concerned, normally uses 70,000 tons yearly, about one-third of the world's annual output. The tinplate industry was the greatest con-

Left behind by war-spurred developments in tinplate processing, the Washington (Pa.) Tin Plate Co., last of the nation's hand-operated, hot-rolled mills, closes its doors next week. Set up in a period when the tin can made its big packaging bid, the 42-year-old mill held on until the war. Then conservation of steel and tin became a dictate to hot-roll mills to convert to newer processes—or go out of business. Now, battered by cold-mill competition, bogged down by war restrictions, the mill elects to close.



Big ones and little ones

General purpose motors, fan cooled, explosion proof, splash proof, gearhead, unibrake, speedranger . . . millions and millions of types and ratings of Master Motors. And any of these can be supplied in standard construction or easily and economically modified to fit EXACTLY the individual requirements of each job.

You'll find that Master Motors, built to meet the individual requirements of each job, can help you step up your production and greatly improve the economy, safety, and convenience of your plant equipment or motor driven products.

Investigate the unusual ability of the Master organization to help you with your part in the Victory program.

THE MASTER ELECTRIC COMPANY • DAYTON, OHIO

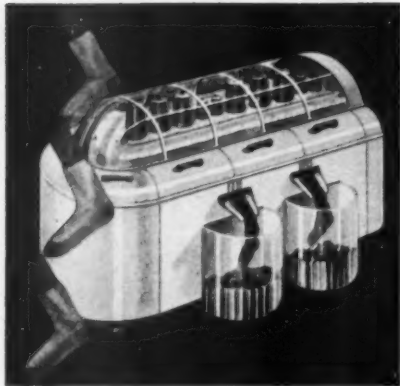
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The Machine of Tomorrow for Producing Hosiery

ready for the finishing room

may not be as streamlined as the illustration, but the hosiery knitting industry may reasonably look for great changes.

More accurate controls of tension and stitch, of moisture regain and of contamination—these are sure—likewise, the combination in a single machine of a sequence of operations now requiring separate units and the transfer tax of time.

Similarly, other machines, in many fields of industry, will pass new milestones of development. Some of these have advanced no farther than a rough sketch; some have emerged from the nebulous stage to the drawing board or to the stage where some practical link is all that is needed to convert an idea into a practical machine.

For such, solution may easily lie in the kind of experience and talent which, at FIDELITY, have developed a whole succession of ingenious and highly practical machines for different industries.

This experience and talent, together with the facilities for converting them into productive units, are described in an interesting book, "Machines and Mechanisms."

It will be sent on request to responsible executives.

★

*Designers and Builders of
Intricate, Automatic Precision Machines*

32 YEARS' EXPERIENCE

FIDELITY MACHINE COMPANY



3908-18 FRANKFORD AVENUE
PHILADELPHIA 24, PA.

sumer of tin in this country, using a peak of about 48,000 tons in 1941 and 30,000 tons annually during the ten years ending 1939. Government restrictions, prompted by Japan's war seizure of tin mines, will drop tin consumption by the American tinplate industry to about 18,000 tons per year.

• **Electrolytic Saving**—Several years before the war, there was developed the electroplating process wherein low voltage generators, or rectifiers, supply direct current for depositing the tin on steel from cast-tin anodes. Such a method requires only half a pound of tin for 100 pounds of steel, just a third of the amount normally used by hot-dip plants.

The Gary tin mill of Carnegie-Illinois Steel Corp. installed an electrolytic tinplating line about six years ago, and in 1941 there were two such lines operating. Because of the two-thirds savings in tin, there was a large-scale shift to electrolytic tinplate production this year, and twelve steel companies now operate 24 electrolytic lines with four more expected to be in production within a few months.

• **Capacity Rises Rapidly**—Most of these lines will electroplate a continuous strip three feet wide at about 500 ft. a minute, although ultimate speeds of 1,000 ft. may be possible. There are hopes that the electrolytic lines will produce one-third of the 2,100,000 tons of tinplate scheduled for this year. But estimates on electrolytic production are difficult to make because of the delay in installations and the resistance of some food packers to the use of electrolytic plate for certain of their more acid products until tests prove the thinner coating is sufficient to safeguard food.

A boost was given the new process when the War Production Board, as a tin conservation measure, decreed that after Sept. 30, manufacturers must use light-coated electrolytic plate in cans for packing many vegetables and milk products. To offset the objections that 0.50-lb. coated electrolytic tinplate is too thin to preserve some foods, 0.75-lb. coated electrolytic tinplate is being developed.

TO STRETCH LUMBER

On and after Nov. 1, working stresses on all "stress grade" lumber used in government building will be increased 20%, according to WPB Directive No. 29 which puts into effect "National Emergency Specifications for the Design, Fabrication, and Erection of Stress Grade Lumber and Its Fastenings for Buildings." Net result will be the saving of an estimated 200,000,000 b.ft. annually which may or may not give civilians more lumber to replace structural steel. The specifications do not apply to dwelling houses and light framing which do not use stress grades.



ALL-PURPOSE TANKS

New water-tank units at the Dodge Chicago aircraft engine plant do more than just store water. Of cypress, the 100,000-gal. tanks are conventional but the reinforced concrete stands are a novelty. Not content with saving 60 tons of steel on two units, Albert Kahn's architects have designed bases as pump houses, the walls as frost casings for pipes, and the rest of the space as a handy place to hang and drain 100-ft. lengths of fire hose.

More Steel Soon

New mill at Geneva, Utah, nears completion; U.S. Steel will operate it now and probably buy it after the war.

It's a pretty safe bet that United States Steel Corp. eventually will own the \$180,000,000 steel plant now under construction at Geneva, Utah (BW-Nov. 21'42,p52). That's implicit in the creation of the corporation's second western subsidiary. (Columbia Steel, San Francisco, was bought by Big Steel in 1939 and has been supervising construction at Geneva for the Defense Plant Corp.) • **Nine Openhearth**—Geneva Steel Co. will operate the new Utah plant, now 80% complete, for the government on a nonprofit basis. The plant occupies a site of 2½ square miles about 35 miles south of Salt Lake City. Facilities will include three blast furnaces with a daily capacity of 1,200 tons of iron; nine

G. M.'S FIGHTER

The Army has approved prototype construction and probable mass output of a new and versatile fighter designed by Don Berlin and other General Motors engineers. This is the first plane to come wholly out of the automotive design departments since Bill Stout drew up the famous Ford trimotor tin goose of the 'twenties, and the first combat plane design to come out of Detroit.

The Cleveland Fisher Body plant, which will make the new fighter, was scheduled originally to operate as a complete assembly unit for superbombers and had worked for several months on jigs and dies. It had never turned out anything, however.

Fisher may continue doing some superbomber work as will De Soto and Goodyear Detroit plants. The two latter have been making B-26 (Martin) Marauder parts and will probably continue. The Truman report said the Army will taper off on Marauders, but there has been no slackening yet. However, if the B-26 goes out, De Soto and Goodyear may turn to the new fighter in a big way.

225-ton openhearth; and four batteries of coke ovens, 63 to the battery.

Its annual capacity is to be 1,200,000 tons of steel ingots, about 700,000 tons of plate, and 250,000 tons of structural shapes—almost twice the size of the Kaiser Co. mill at Fontana, Calif.

• **Integrated Operations** — Columbia Steel will continue to operate its plant at Ironton, Utah, the only completely integrated steel-producing operation west of the Rockies until recently.

MARTIN SPLITS PROCEEDS

Seven employees of the Glenn L. Martin Co., Baltimore, who have worked out patentable inventions ranging from an adapter for a riveter to the flexible Mareng cell for transporting gasoline and other liquids, are beginning to cash in on a new employees' patent remuneration plan.

Under the plan, the company takes care of the prosecution and expense of all patent applications. Though it makes sure of its "shop rights" by securing an assignment of any resultant patent in advance, it works out a separate agreement with the employee-inventor which specifies that if the patent is licensed to any outside concerns for manufacture, he "will receive a share of the proceeds . . . starting at 10% until the inventor has received \$5,000 and according to a sliding scale thereafter."



Hitler and his Nazi "supermen" counted on superhighways to carry their war transportation load. In their vaunted opinion, railroads were secondary.

Now, these "supermen" are learning too late what America knows. They are learning that mass railway transportation is vital to mass production and movement of war materials and mass movement of fighting men. They are learning that a vast network of 400,000 miles of steel rails crisscrosses and unites every part of this land. They are learning and feeling the effects, of America's overwhelming war production and military power, which keeps the rails of this nation humming every hour of the day and night, with the efficient movement of one and one-third million tons of freight a mile every minute and more than 2,000,000 fighting men a month. They are learning the hard and bitter way how the American railroads, with their efficiency and coordination and their loyal employees, are performing the biggest transportation job the world has ever seen.

Above all, Hitler and his "supermen" will learn in the months to come that free enterprise and the free people of the United Nations will win unconditional surrender from their enemies.

NORFOLK and WESTERN Railway

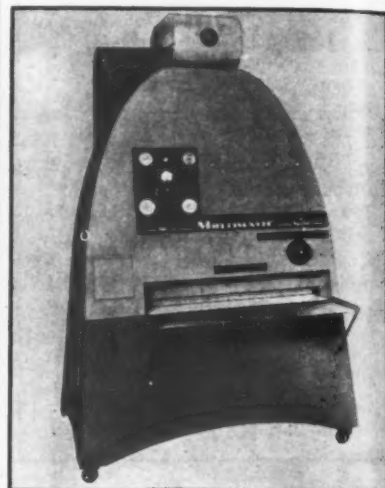
ONE OF AMERICA'S RAILROADS . . . ALL UNITED FOR VICTORY!

BUY MORE WAR BONDS

NEW PRODUCTS

Continuous Microfilmer

Engineering drawings and other important papers of any width up to 42 in., and of practically any length, can be automatically and continuously reduced to 35-mm. microfilm with the Micro-Multimatic Camera and Enlarger, new product of Graphic Microfilm Service, Inc., 7 Dey St., New York. Conversely, microfilm enlargements to any



width up to 42 in., and in any magnification up to 32 diameters can be produced with equal facility with the apparatus.

Material for reduction is fed through a slot in front at a speed of 60 ft. a minute. As a pedal is depressed, a feeding mechanism rolls the "copy" over the camera bed while about $\frac{1}{16}$ in. of film, rolling in the opposite direction, is exposed at a given instant—somewhat after the manner of a panoramic camera. Automatic control is provided by an electric eye. To give you an idea of the machine's versatility, it reduced a business letter 11 in. long to a legible length of $\frac{1}{16}$ in. and a public utility's street-connections map 55 ft. long to a clear, undistorted microfilm just 15½ in. long, both on the same run and without adjustment.

Needle Cooler

When fabrics that have been fire-proofed, waterproofed, or otherwise treated are run through a highspeed sewing machine, the needle is often subject to unusual friction, causing scorched and burned threads, softened and blunted needles. To alleviate such conditions, the Union Special Machine Co., 404 N. Franklin St., Chicago 10, is bringing out a new Needle Cooler.

The device consists essentially of a direct-connected, fan-type blower and a tube to carry cooling air over the top

"LET'S GET ON WITH THE WAR"

These FREE BOOKLETS Will Help . . .



Mr. DAG

These 5 free booklets on dag colloidal graphite can help you in more ways than one. Each covers a different use or group of uses for dag products in industry. If you haven't used dag colloidal graphite or don't know all these uses meet Mr. dag today by writing for one or more of the booklets. Just clip the coupon.



1-BULLETIN No. 421

ASSEMBLING AND RUNNING-IN ENGINES AND MACHINERY

Lists 10 advantages of adding dag colloidal graphite to liquid lubricants for these operations and tells why with photographs, charts, and simple, non-technical text.

3-BULLETIN No. 423

HIGH TEMPERATURE LUBRICATION

How dag colloidal graphite takes over when the going gets too hot for conventional liquid lubricants. Gives examples in forging, oven conveyors, kiln cars, bottle and die casting machines, etc.

5-BULLETIN No. 430

GENERAL BOOKLET—The story of dag colloidal graphite. 12 pages fully illustrated. Gives the how and why of colloidalization, explains the various liquid carriers and suggests dozens of places where dag dispersions can speed up production.

2-BULLETIN No. 422

PARTING COMPOUNDS

Tells how dag dispersions prevent objectionable freezing, rusting or sticking together of metals and other materials. Cites use on screw threads, lamp bulbs, aviation and diving equipment; also in glass, rubber and foundry industries.

4-BULLETIN No. 431

"dag" COLLOIDAL GRAPHITE FOR IMPREGNATION AND SURFACE COATING

of textiles, asbestos, felt, abrasives, porous metals, paper, wood, etc. to impart lubrication properties, electrical conductivity, opacity, color, or other desirable qualities.



**ACHESON
COLLOIDS
CORPORATION**

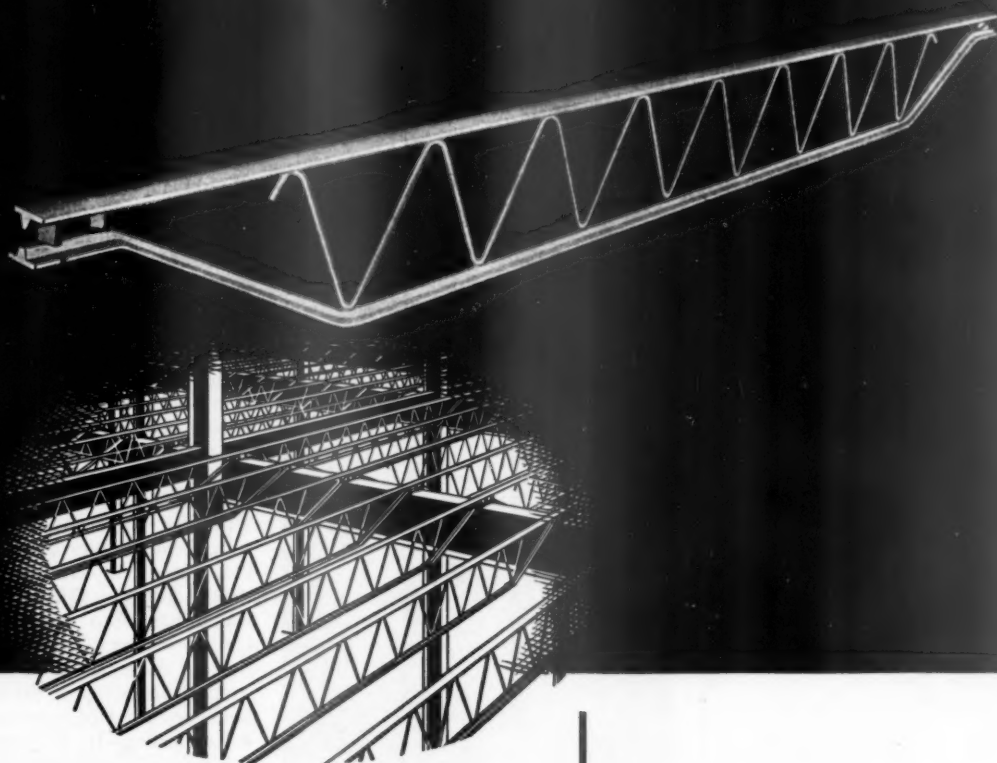
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Port Huron, Mich.

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Our Present Oil Supplier Is _____

(Lubricants containing dag colloidal graphite are available from major oil companies.)

Open truss steel joists will be ready



● Truscon Open Truss Steel Joists will be quickly available when peacetime construction plans become realities and new structures demand rapid, safe and permanent floor construction. Adequately proved strength . . . lightness of weight . . . adaptability to a wide variety of requirements, including sound- and fire-resistant construction . . . these are a few of the many features of Truscon O-T Joists. They are designed and manufactured in accordance with the specifications of the Steel Joist Institute, and the Simplified Practice Recommendations of the U. S. Department of Commerce.

Other Truscon products for post-war construction are: standardized reinforcing and structural steel for every kind of building design; steeldeck roofs; steel buildings from standardized parts; steel doors, especially for modern airplane hangar needs; steel windows for every type of building construction. Wartime demands have been met by Truscon Ferroglass design, a radical new adaptation of steel and fibre glass; and by Light Steel Framing, which permitted amazing new records in barrack construction. In addition, Truscon armament production records have contributed materially to the war effort.

Today, Truscon is one move ahead in the development of steel building products and designs for tomorrow's construction. Keep in touch with Truscon to be a step ahead in your peacetime building plans.



TRUSCON

Steel Company

YOUNGSTOWN 1 • OHIO

Subsidiary of Republic Steel Corporation



QUICK ACTION ON
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MANAGEMENT
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ENGINEERS AND CONSTRUCTORS

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WAR BABY**

**THE PIONEER
CUSTOM INJECTION MOLDER
of America offers you**

THEIR LATEST *Free*
ILLUSTRATED CATALOG

It Contains Information on—

- **ENGINEERING AND PRODUCT DESIGN**
- **FINISHED PRODUCTS**
—coloring, stamping and other finishing.
- **ADAPTABILITY**
—replacement for other materials.

CATALOG IS FREE

We invite you to consult with our engineers on any plastics problem confronting you. There is no obligation.

ERIE RESISTOR CORP., ERIE, PA.

of the machine and to the needle. During a six-month test by operatives of Oshkosh B'Gosh, Inc., "they were able to increase their machine speed 10% and at the same time substantially reduce needle consumption."

Metallized Glass

Glass may be soldered to glass or metal since Corning Glass Works, Corning, N. Y., discovered a new process called "Hermetic Metallizing on Glass." The metallizing, which needs to cover only the area to be soldered, is described as becoming "part of the glass itself . . . the answer to your hermetic sealing problems. Parts can be soldered to it by ordinary soldering iron, soft air-gas flame, or induction heating."

Extinguisher Seal

One way of assuring the constant readiness of a standard 24-gal. fire extinguisher for its emergency job is to equip it with the new Frederiksen Safety Seal, manufactured by the Frederiksen Service Co., 605 W. Washington Blvd., Chicago. It is a patented envelope of unusual design which slips over the hose and around the extinguisher top and is secured in position by a lead-wire



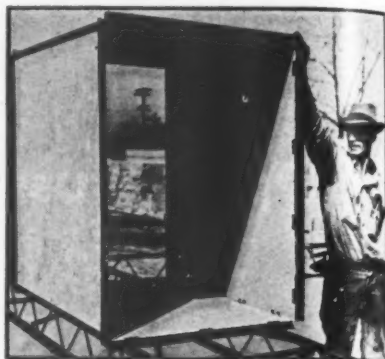
seal. On the envelope are spaces for records of fillings and inspections. To put the extinguisher into action, tear the envelope from the hose and proceed as usual.

Ductwork Connectors

Three basic forms of the new Lumm Panel Connectors come in various gages of metal to put together almost any length and perimeter of nonmetallic ductwork for heating, ventilating, and air conditioning. They are made by

A. H. Lumm Co., Toledo, to comply with government restrictions on the percentage of metal permitted in ducts, and distributed by Dravo Corp., 300 Penn Ave., Pittsburgh.

Each of the three members is equipped with clips on 12-in. centers,



so shaped that asbestos-cement or other board slips in easily for clinching. Should a board become damaged, the clips may be unclined to permit replacement without disturbing adjacent panels.

New Products Briefs

Also reported this week, not only for their interest to certain designated business fields, but also for their possible import in the postwar planning of more or less allied fields and business in general, are the following:

• **Public Utility**—Now that metal accessories for electrical lines have become scarce, the Rainier Crossarm Co., Chehalis, Wis., is offering new Crossarm Braces and Guy Guards made of wood which has been treated to protect it against rot and insects. Tests indicate superior dielectric qualities and physical strength in excess of the lag bolt which holds any kind of brace on a pole.

• **Railroading**—H. K. Porter Co., Inc., Pittsburgh, is bringing out a new 100-ton Diesel-Electric Switching Locomotive with two power plants, said to be the first of the type. With half a load, one engine provides all the speed of both, plus significant fuel economy; with a full load, two engines cooperate as one. The centrally located locomotive cab is mounted high for maximum visibility.

• **Metalworking**—Taper keys for the assembly of gears, pulleys, clutches, shafts, and the like can be cut quickly to any angle on a shaper with the new Taper-Key Attachment manufactured by Clark Machine Tool Mfg. Co., 1202 Thomas St., St. Paul, Minn. The device includes a tool that takes the key size and transfers it to a jig that governs the cutting off of excess key stock to provide an accurately finished key ready to drive home without filing, grinding, or other time-consuming operations.

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43



You've got to multiply by **THIRTY MILLION**

MAYBE YOU HAVEN'T been saving waste fats and grease in your kitchen simply because you thought the little you could contribute wouldn't be worth while.

Don't you believe it! Little things, when multiplied by the power of America's thirty million homes, have a habit of adding up to really important amounts.

Even the comparatively large quantity of fats and grease which the six huge kitchens of the Hotel Pennsylvania carefully salvage, plus that saved by all other hotels, is but a drop in the bucket compared with the amount America's housewives could save—if they but realized the vital need.

For, while the hotels of America

serve approximately a million and a half meals daily, the homes of America are serving almost *ninety* million meals. Look! . . .

If you save a single tablespoonful of fat in your kitchen today, and every other home does the same, it will supply our war industries with almost a million pounds!

That's enough fat—salvaged in one day—to make the glycerine needed in producing a *million and a half*

pounds of gunpowder! So . . .

Save every bit of used or waste fat—every day. Strain it into a clean, smooth-edged can. Thirty-one tablespoonfuls make a pound. When you have a pound or more, your butcher will *buy* it. Then put the money into War Savings Stamps.

It's a mighty small service Uncle Sam is asking of us—but it's mighty important!

THE STATLER HOTEL IN NEW YORK

Hotel Pennsylvania

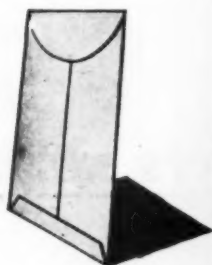
JAMES H. McCABE, General Manager



**THE VARIABLE
IN WAR PRODUCTION
IS NOT MACHINES**



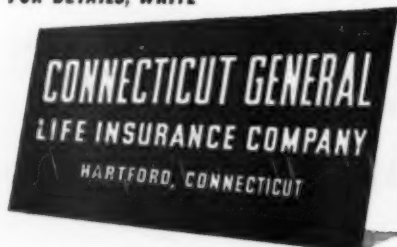
IT IS PEOPLE...



**THE
"PROTECTED PAY ENVELOPE"
HELPS STABILIZE THIS
VARIABLE**

... by providing protection
that brings stability to the
people who are doing the
job.

FOR DETAILS, WRITE



LABOR

Job or Union?

**Worker must make choice
under recent decisions of state
unemployment compensation
boards where union is issue.**

Since the Social Security Act's unemployment compensation provisions became law and were accepted by all states and territories, the state boards which administer them have endeavored generally to maintain the status quo as far as union membership is concerned. But recent decisions of unemployment compensation boards of review in at least two states indicate a narrowing construction bitterly resented by organized labor.

• **Freedom of Choice**—Language of the federal Social Security Act is in most cases duplicated in the state acts, since these were enacted to make the states eligible for participation in the employ-

ment security system. The law that a man may not be denied employment compensation if he refuses a job where "as a condition of being employed, he would be required to join a company union, or to resign from or refrain from joining any bona fide organization."

A long line of appeals decisions by review boards (and in one case by a court) interpret this as meaning that if the worker is a member of a union whose rules require his expulsion if he takes a job offered, he need not take it and is entitled to unemployment compensation.

• **Up to the Employer**—But recent decisions in Pennsylvania and Colorado that the union's attitude has nothing to do with it. These boards have ruled unless the prospective employer himself demands that the worker resign, change his union affiliation, the worker must take the job. Otherwise he is entitled to compensation. These rules are not inconsistent with the attitude



WORKERS' SHANGRI-LA

Aircraft workers at Burlington, N. C., are beating the shortage of recreational facilities common to small war-boomed towns by operating their own private nightclub—Shangri-la. The procedure was A-B-C stuff. Fairchild employees just pooled their money, leased a dine and dance spot, cleaned and painted it, and put in a soda fountain. Now members jerk sodas, do all the work, dance to their own band, cavort for \$1 monthly dues.



YANKEES are at TRINIDAD



A Pan-American seaplane lands at Port of Spain, Trinidad.



Unloading materials for new U. S. base.



TRINIDAD

Trinidad, lying just off the coast of South America, is the southernmost anchor of the West Indies. Its area of 1862 square miles, and its population of 434,907 make it among the most important of these islands, a position intensified by its heavy import and export trade. Among Trinidad's

unique features are the native "Calypso" singers, almost the last survivors of the age of minstrels. The island produces oil and oil by-products . . . while its 348,850 cultivated acres produce valuable farm products. For years, American tourists visited this island with delight, but today, a new sort of tourist, the Yankee *Doughboy*, stands watch with American sailors over our Trinidad base, helping to guard the Panama Canal.

and so is Lehigh Portland Cement

of America's military and naval
ations on Trinidad called for
construction as safeguards to the
Panama Canal. Once again, Lehigh
cements were used, just as they are in
U. S. bases at home and abroad.

service-strength concrete is needed

in a hurry, it is often wise to choose
Lehigh Early Strength Cement. It pro-
duces a finer, denser concrete in $\frac{1}{3}$ to
 $\frac{1}{5}$ normal curing time . . . means faster
job-completion and often reduces costs.
Lehigh has an answer for every concrete
problem. Our Service Department will
gladly advise you at any time.

Lehigh
CEMENT

LEHIGH PORTLAND CEMENT COMPANY • ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

Week • August 28, 1943

For Uninterrupted Service, **INSTALL**
FA PANELBOARDS

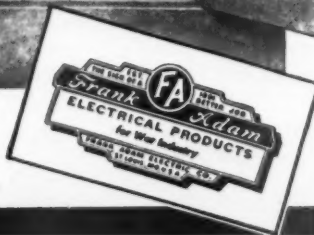
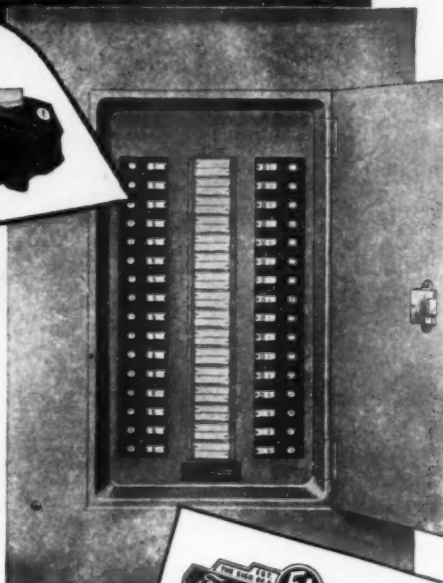
with assemblies
of the improved



Type AC
THERMAG
 Circuit Breakers

The combination of THERmal trip with the new MAGnetic trip, in the individual circuit breakers, assures double protection. On harmless, momentary overload the time lag characteristics of the thermal element prevent interruption of service, but trip on sustained, harmful overload. On short circuit, the magnetic element causes faster tripping.

Panelboards—Thermag equipped—are made in Standard Type, Narrow Column Type, and Dust-tight Type construction . . . Approved by Underwriters' Laboratories, Inc.



PLYWOOD "REEFERS"
 are helping speed food transportation

Every day millions of pounds of perishable foods travel safely and quickly in Douglas Fir Plywood refrigerator cars. The big panels reduce construction time . . . save labor . . . build smooth, sanitary interiors and sturdy, dirt-resistant exteriors. All-plywood "reefers" have been built by St. Louis Refrigerator Car Company

and Pacific Fruit Express Company. Pacific Car & Foundry Company and other manufacturers are using thousands of feet of Douglas Fir Plywood to line their cars. So well is Douglas Fir Plywood doing this work that you'll find railroads making far wider use of this Miracle Wood after the war!



FREE FOLDER SHOWS OTHER PLYWOOD WAR USES
 Write Douglas Fir Plywood Association, Tacoma, Wash.

STRONGER PER POUND THAN STEEL!

**DOUGLAS FIR
 PLYWOOD**

Real Lumber
 MADE LARGER, LIGHTER
 SPLIT-PROOF
 STRONGER

the Social Security Board in Washington that it will not interfere so long as the employer does not "require" an employee to join a company union or sign from a bona fide union.

Most recent case is that of Frank Ristau, an unemployed member of the carpenters union in Denver. He was offered a job by the U. S. Employment Service in a nonunion shop at 90¢ an hour and the union scale is \$1.50. He refused the job and the compensation deputy ordered him compensation; but the board, Meyer Rifkin, reversed the deputy's ruling that Ristau was compensable. **• Labor Member Dissents—**Non-union Colorado Industrial Commission, as a board of review, has reversed the board's decision and denied compensation to Ristau. The commission split two to one, the dissenting member being the labor member. Majority members represent employers and the public, respectively.

In a similar case it was held that Borgheinck had been offered suitable employment, even though it was in a nonunion shop. He would lose a carpenters union membership of 23 years' standing, \$500 life insurance, \$250 in burial benefits and the right to a pension or to a home in the carpenters' home. In each case union officials testified that if they took the offered jobs, the union would have to expel them.

• Expulsion Feared—In Pennsylvania the board of review has reversed a previous decision. In the case of Allen, a member of the International Ladies Garment Workers Union, who held a job 3½ hours, then quit when found she was liable to expulsion from the union, the board asked: "Is the threat of expulsion by an employer own union because of acceptance of non-union work . . . equivalent to the employer's requirement that he resign?" The board held that the act "relates to the act of an employer" and denied compensation.

In a case decided last Dec. 23, Pennsylvania board ruled similarly against a man who had been working in a plant when it became a union shop. The man refused to pay union dues and quit when warned by the superintendent he had better pay. The board held that he had quit voluntarily, wasn't entitled to unemployment compensation.

• Lewis' Petitioners Won—As late as August, 1942, the Pennsylvania board granted compensation to two members of the United Mine Workers who, addressing a petition directly to J. Edgar Hoover instead of sending it through the local union and the district, were suspended for six months from the U.M.W. and, because the mine was a union shop, lost their jobs for that period also.

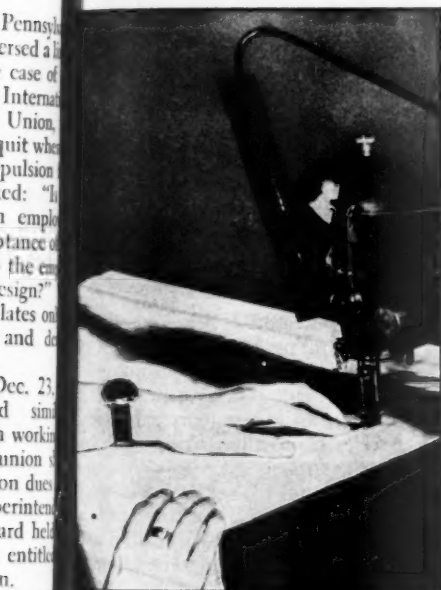
Other cases decided by state boards of review include:

In Nebraska, a union painter who refused work as a painter's helper at

ards the union scale for journeymen
is held compensable.
In Indiana, a man refused a job with
employer who was on the unfair list
his union but paid the union scale of
ages. He would have been expelled
from his union if he had taken the job.
He was held compensable.
In Indiana, an employer had no em-
ployees who were members of union A,
and entered into a closed shop agree-
ment with union B. A court held that
the employer was justified in
refusing employment with him, and was
held compensable.
In Illinois, an employee was held to
have good cause to refuse a job at tem-
porary work if it would cause him to
lose his union membership.

DEFERMENTS AT STAKE

Rhode Island's Selective Service head-
quarters has provided an answer to the
question of what happens to an em-
ployer when he hires new workers who
do not have a certificate of availability.
Such an employer's replacement sched-
ules are canceled, and he gets no further
draft deferments.
Rhode Island's ruling, underwritten
by national SS officials, was communi-



GUARDIAN ANGEL

With the halt, the lame, and the
blind being drafted for war jobs, the
development of novel mechanical
safeguards has been accelerated. New-
est is an electromagnetic brake for
power sewing machines, making them
safe for sightless operators. When a
hand moves too close to the needle,
it breaks the beam of light from a
photoelectric cell, switches off the
current, and stops the machine.



SPEEDING
AIRPLANE PRODUCTION
FOR OUR CANADIAN ALLIES...
...with Specially Tooled DELTA Equipment
for Drilling 240% More End Plates per Hour



NFB Photo

In this Canadian plant, a sav-
ing of 139.8 man-hours per
hundred aircraft resulted from
an ingenious application of
standard low-cost Delta ma-
chines — typical of hundreds
of similar applications in the
United Nations war effort.

With stock model Deltas in
units, batteries, and special
setups, you strike a happy me-
dium between slower operations
(electric hand drills, in this in-
stance) and large, costly, slowly
constructed special machines of
limited usefulness.

center section end plates on the drill jig.
The jig has been turned over and holes
are being drilled through the back of the
jig. The Delta drill press, mounted on
rollers, moves freely up and down and
across the whole surface of the jig.

Use Delta machines to help you develop
a simple, safe, satisfactory production line
that is a credit to all concerned. Investi-
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Delta Catalog.

MA-3

Here toggle clamps hold four

★ TEAR OUT AND MAIL THIS COUPON TODAY

DELTA
MILWAUKEE
Machine Tools

THE DELTA MANUFACTURING CO.
901K E. Vienna Ave., Milwaukee 1, Wis.

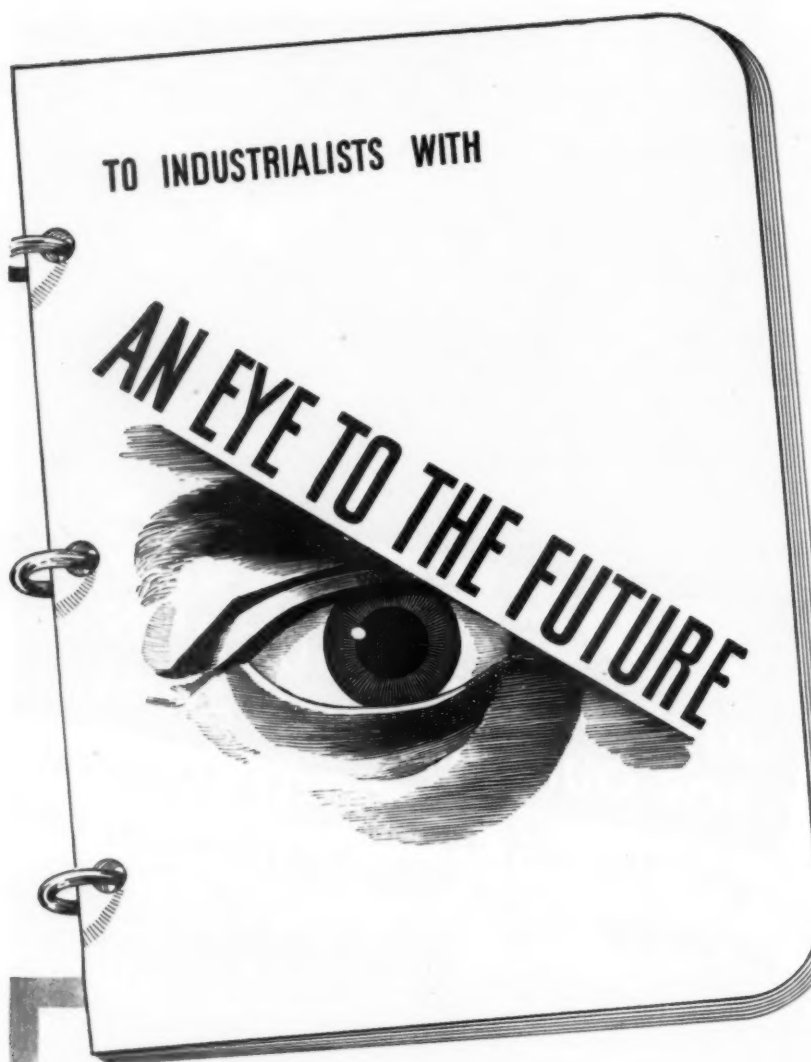
Please send me typical issues of "Tooling Tips" and
your new catalog of low-cost machine tools. ☐ Also
send ASTE Data Sheets on Delta Drill Press Heads.

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Company.....

Address.....

City.....(.....) State.....



INDUSTRIALISTS with vision of the widest variety . . . loyal, are turning their eyes toward intelligent labor that prides itself upon giving a full day's plans for the future. Here in North Carolina as they make work for a day's wage. this *balanced State* are to be found all the elements that assure an efficient and profitable manufacturing operation: Climate permitting year-round production . . . closeby markets . . . water, rail and truck transportation . . . hydro-electric power . . . raw materials

NORTH CAROLINA

cated to the Walsh-Kaiser shipyard Providence when that company was covered putting new employees to work without satisfying the certification requirements of the War Manpower Commission. The shipyard has announced that it is complying by charging the men in question.

Walsh-Kaiser's general manager, J. Macdonald, reported to Selective Service that "we have been under considerable pressure from labor unions and have suffered one work stoppage in our effort to carry out these requirements." He expressed regret that a controversy between organized labor and the Rhode Island WMC had put the yard in a difficult position but made it clear that the alternatives are compliance or cancellation of draft deferments.

Rhode Island unions are at loggerheads with WMC because the commission's state director is Farrell Coyne, who incurred their enmity when, WPA boss, he tangled with the A.F. of L. over jobs at the Providence airport.

Chrysler Weapon

Auto firm's successful case against m. of m. documented by compilation of the U.A.W. strike record.

The National War Labor Board's decision in the Chrysler Corp. case last week may well open a new front in the union-management battle over union security. Noteworthy was the fact that the board refused C.I.O.'s United Automobile Workers a maintenance-of-membership contract—and with the support of its labor members.

• **Hidden Reason**—The grounds on which the ruling was based are not immediately evident in the wording. It was stated that U.A.W. was turned down because its members participated in a series of wartime strikes. To provide an incentive for keeping the peace, U.A.W. was told that the board would review the membership-maintenance request six months hence. But, in a number of cases which have come before it, a bad strike record has not deterred NWLB from ordering maintenance of membership. The explanation of the board's Chrysler action must be sought elsewhere.

It may be found in the persuasive brief Chrysler representatives presented to NWLB in support of their contention that U.A.W. was not worthy of membership-maintenance benefits.

• **Factional Quarrel**—The National Labor Relations (Wagner) Act prohibits an employer from influencing a union, and the few companies that have tried to mix in organized labor's internal affairs since the Supreme Court validated



"A few Bottles of your Remedy Increased Machine Gun Production Overnight!"

ANOTHER NATIONAL GYPSUM PRODUCT READY FOR THE POST-WAR WORLD!



1 You'd think they were patent medicine testimonials, the things people say about this new Gold Bond Sunflex DeLuxe paint that comes in bottles. But they're all true...



2 For instance there was a company making weapons. Mistakes were frequent. Rejects ran high. New lighting equipment was hard to get. Then somebody thought of painting walls and ceilings with new light-reflecting Sunflex DeLuxe.



3 It was just like adding windows! Production jumped! Today from Maine to Texas war plants are brought to peak efficiency with Sunflex DeLuxe. Painter's tests show it's the cheapest paint to use. And there's plenty available for you!

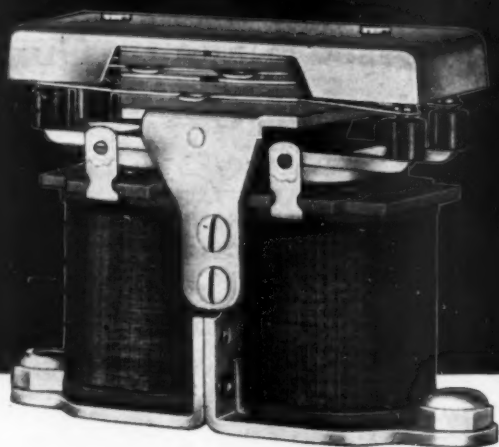


4 Among other wonderful products for the post-war world is washable Gold Bond Sunflex DeLuxe. It dries in one hour and gives better results over almost any surface—even wallpaper. You can get it now at your Sunflex Dealer's.



5 Sunflex is one of over 150 Gold Bond products, including new heavy-duty gypsum boards to replace scarce lumber for low-cost housing, farms, factories and other emergency duration building. Ask your Gold Bond Dealer. National Gypsum Company, Buffalo, N. Y.

WARTIME PRODUCTS OF NATIONAL GYPSUM: METAL LANDING MATS FOR PORTABLE AIRFIELDS; INSULATION TO KEEP OVERSEAS FOOD SHIPMENTS FRESH; GOLD BOND GYPSUM BUILDING BOARDS TO REPLACE SCARCE LUMBER; METAL CASTING PLASTER TO ELIMINATE FINISH MACHINING FROM DELICATE NON-FERRUCUS CASTINGS; LIME FOR THE MANUFACTURE OF STEEL AND MAGNESIUM.



Look to COOK for the Impossible!

*A Specially Designed Differential Relay
Was Required For An Automatic Pilot
... Again Cook Did The Impossible*

Dilatory tactics have no place in war time. Action—immediate action—is the one requirement. Here is another example of this company's capacity for doing the impossible for war.

A Differential Relay, possessing unusual characteristics, was required for use with an automatic pilot. The Relay illustrated above, designed intelligently, constructed to dependable standards, was delivered in record time.

The will to attempt the impossible, time after time, has resulted in still further assignments by our Government. This is exemplified by the amount of specially designed Cook field telephone equipment now in wartime service, by the wide use of Cook "Spring-life" Belows to provide perfect gas-air ratios in aircraft engines operating at high altitudes, and by numerous other items which cannot be mentioned here.

Now, and in the days soon to come, this capacity to depart from standardized design, to utilize manufacturing facilities rapidly, are and will be worthy of your consideration in preparation for the selling war that will follow this actual war.

If you have an unusual or difficult problem, one not capable of being solved by ordinary, hackneyed procedure, send it to us. We have no patience with the "can't be done." We do the impossible because we have never learned "it can't be done."



2700 SOUTHPORT AVENUE • CHICAGO (14), ILLINOIS

100 • Labor

the law in 1937 have been punished for unfair labor practices. Most employees cautiously refrain from evincing any interest at all in union politics.

Chrysler, however, was face to face with an acute strike problem that derived in large part from a bitter factional battle that rages within U.A.W. It is the same intramural conflict that wracks most of the C.I.O. organizations—left vs. right, complicated by personal ambitions—but in U.A.W. it is more intense. For business reasons, if for nothing else, Chrysler management was forced to learn what and who it was that made its employee relations a nightmare.

• **Resumé of Chaos**—When Chrysler appeared before NWLB to argue against a maintenance-of-membership contract it was able to present a comprehensive picture of U.A.W.'s intramural politics and point out that internal struggles threatened to keep the union unstable and irresponsible.

Chrysler's brief was documented from no secret sources. It was a compilation of public information about U.A.W.'s chaotic affairs. And NWLB had no alternative except to refuse the union's demand for membership maintenance.

LOCAL NWLB REVERSED

Brushing aside the 9-0 unanimity of the Cleveland Regional War Labor Board, the National War Labor Board has reversed the decision of its Ohio unit in the Trailer Co. of America case (BW-Jul.24'43,p98) and reaffirmed the sanctity of collective bargaining contracts. Without dissent, NWLB canceled directive orders issued by the Cleveland board which set aside terms of an agreement between the Trailer Co. and an A.F.L. union. The national board declared that as long as a union is the collective bargaining agent certified by the National Labor Relations Board, its contracts will be enforced by NWLB, then remanded the dispute for further hearings.

The Cleveland board, its employer and labor members approving, ordered suspension of a clause in the company's union agreement which provided for the discharge of employees who failed to maintain their membership in the A.F.L. The ruling was justified as necessary to avert a strike threatened by the C.I.O. which had members in the plant who were refused membership in the A.F.L. The Cleveland order was accompanied by an opinion which declared that the contract was only temporarily suspended until NLRB could determine which union had a majority.

An A.F.L. appeal carried the issue to Washington where C.I.O. representatives on the national board voted along with the rest of the board to reverse the Cleveland ruling.

Business Week • August 28, 1943



See an Ozalid machine in operation

chances are—Ozalid whiteprints being made in a plant in your vicinity and you may be able to witness a demonstration of simplified printmaking.

Bring your own engineering drawings. Show you can make whiteprints in one continuous operation...and save time, labor, and materials.

COMPARE OZALID WITH ANY OTHER METHOD

You'll be surprised at the compactness of Ozalid machine. It can be installed in any corner of the

drafting room. This saving in floor space is possible because Ozalid eliminates the chemical baths, driers, and plumbing connections employed in other processes.

This simplification allows you to quickly train an inexperienced person to operate the machine at top efficiency.

In addition, you get exclusive print-making extras!...

CHECK THESE OZALID EXTRAS

1. You're able to use the widest variety of sensitized materials—papers,

cloths, and foils...and make prints having blue, black, or maroon lines on a white background.

You'll find that Ozalid whiteprints are easier to read and check than blueprints. They are also fade-proof and wash-fast.

2. You make "duplicate originals" in the same manner as standard prints—no Van Dyke difficulties. These may be used in place of the original in subsequent print production...or to eliminate unnecessary drafting when making design changes.

It is not necessary to redraw any part which remains the same as in the original!

3. You're able to use cut sheets as well as roll stock in an Ozalid machine, thereby eliminating trimming waste.

No paper is lost by pasting up "leaders."

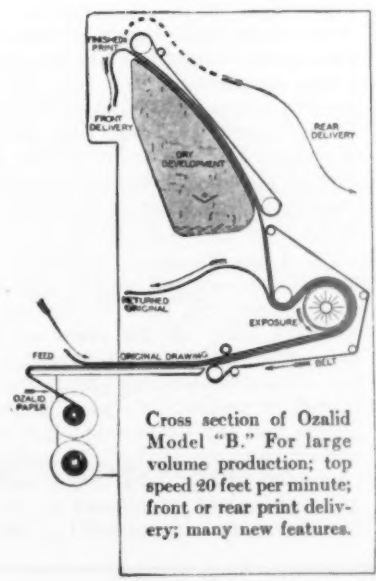
No prints are unusable because of distortion.

FULL LINE OF MACHINES

There's an Ozalid machine for every print production requirement. So if you want to turn out prints at speeds up to 20 feet per minute—or if you need only a dry developing unit to use with your present printer—adopt Ozalid.

Write for catalog and sample booklet of whiteprints. See how leading manufacturers, save time, labor, and materials.

OZALID—MORE THAN A PRINTMAKING PROCESS



Cross section of Ozalid Model "B." For large volume production; top speed 20 feet per minute; front or rear print delivery; many new features.

OZALID PRODUCTS DIVISION

GENERAL ANILINE AND FILM CORPORATION
Johnson City, N. Y.

OZALID IN CANADA—HUGHES-OWENS CO., LTD., MONTREAL

WHAT THE LABOR BALANCE SHEET SHOWS

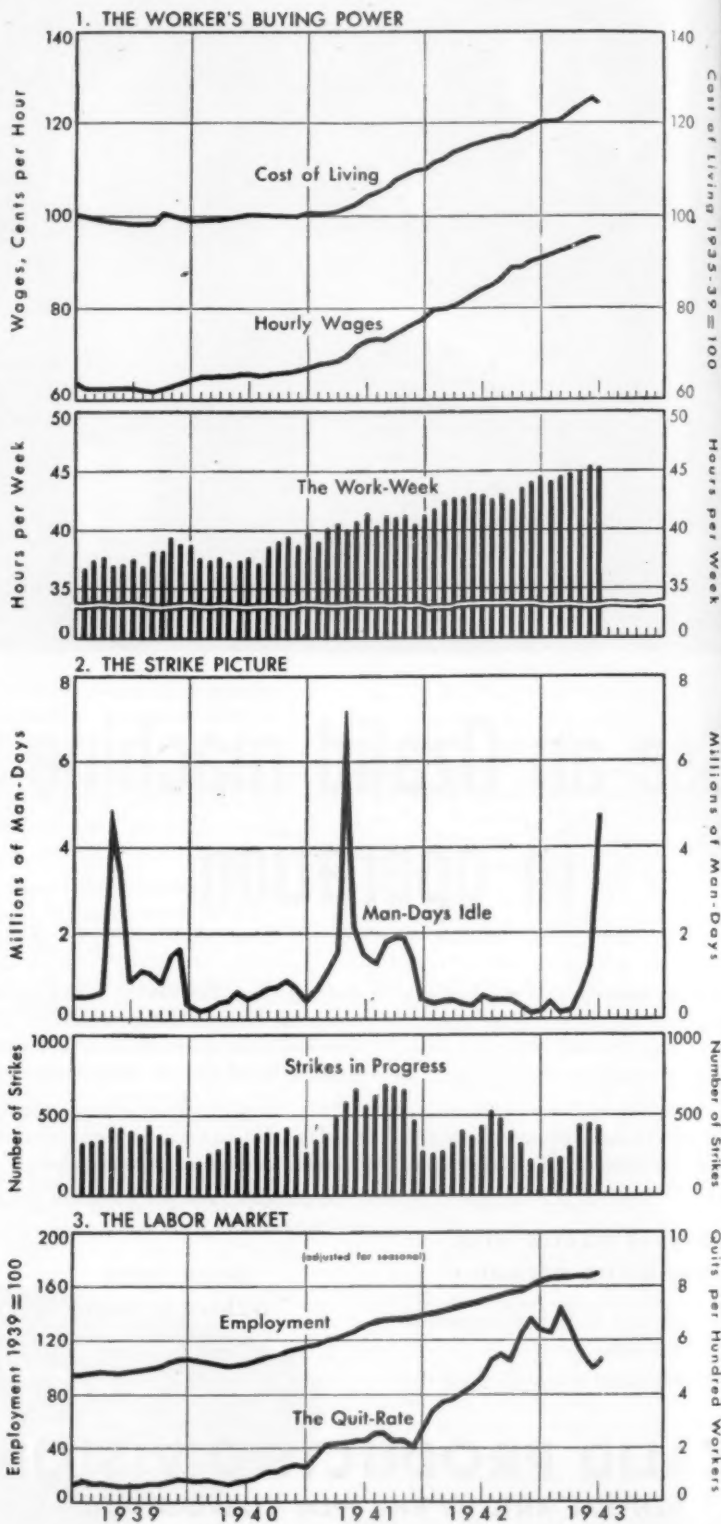
Figures Behind the Manpower Problem

Three series in the current presentation of Business Week's quarterly roundup of labor statistics show dramatic developments. These are (1) the drop in the cost of living, first since November, 1940; (2) the precipitate increase of man-days of idleness caused by strikes; and (3) the falling off of the quit-rate—still a full point and a half below its February high, despite a half-point rise in June. Of this mixture of good news and bad, only one item promises to be of long-run significance, and that is living costs (page 120). Events have moved, if not to cancel the effect of the coal strike which shot the idleness curve up, at least to repair the dent it made in the war effort. And the quit-rate, though still a real problem to manpower planners, has become of only peripheral interest in view of the over-all labor deficiency that is threatening to put a ceiling on the production program.

• **The Worker's Buying Power**—At 123.8 for July, the cost-of-living index has slipped back a full 1% under its May high. Seasonal factors and subsidies account for the drop, but government stabilizers at last are convinced that they have the price structure in hand, that it will be possible to stay at around the 125 level for the next six months. That such index control will immediately benefit the wage earner is attested by the fact that hourly pay shows no comparable slackening in climb. The average of hours worked per week (45.2) may be close to its upper limit, but this will not be surely demonstrated for another six months.

• **The Strike Picture**—Take out the coal strike and the labor dispute picture does not look too unhealthy. The new teeth which the National War Labor Board received last week (BW—Aug. 21 '43, p7) should help to keep both the number of strikes and the amount of time lost through disputes down to a manageable minimum. New strikes loom but promise to be of shorter duration.

• **The Labor Market**—The summer influx of students and youths into the labor market has been on an unprecedented scale, but the effect on the index of employment has been negligible. Unless nonworking groups are attracted or ordered into jobs, it seems certain that the employment level will not go up much further. Though declining for March, April, and May, the quit-rate has not yet reversed its trend. June figures show an upward turn again.



Data: U. S. Bureau of Labor Statistics, Federal Reserve Board.

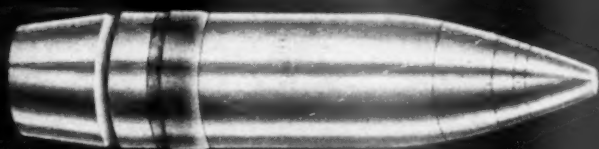
© BUSINESS WEEK



TOO SLOW



TOO FAST



ON THE NOSE

Will the next projectile be a tortoise? Or a hare? Or...

Will it burst at the crucial instant—on the split second—on the enemy target?

It all depends! On what? On marksmanship? Yes, in great part. But also: On a precisely pre-determined minimum of moisture in the fuse-powder. The powder must always be the same. Too dry—it burns too fast. Too moist—too slow.

What prevents excess moisture—or too much dryness? The answer is found in the arsenal—thousands of miles away—where the fuse was

loaded! There, the condition of the air—humidity, temperature and movement—is controlled by CARRIER equipment.

This "miracle of control" actually began during World War I—when CARRIER air conditioning was used for the first time in making ammunition.

For this pioneering accomplishment the War Department of the United States presented to CARRIER in 1918 an "Award for Distinguished Service."

History repeats itself. But the Army-Navy "E" flown by CARRIER since 1941 is a tribute to production results of far greater scope.

Today, CARRIER equipment not only helps make shells that burst "on the nose" but serves in the manufacture of synthetic rubber, hi-octane gasoline, bomb-sights and many another fighting product.

What a land ours will be when American industry can turn from destruction to construction! When men can live and breathe and work again in the air of freedom!

Let's get it over Quick!

CARRIER CORPORATION, Syracuse, N. Y.

AIR CONDITIONING

Carrier



REFRIGERATION

MARKETING

Coming to Life

Television's future as an advertising medium again stirs speculative talk on Radio Row. Postwar networks seen.

For the first time since war blacked out the still flickering television picture, radio and advertising interests are thinking and talking television. Most of the talk about technical probabilities is hushed, since the bulk of the developments in the field has been brought about as byproducts of semisecret radar (television research as such was abandoned for the duration except for military purposes about which military secrecy must also be maintained). But electronic experts agree that obstacles for which there were only tentative solutions before the war will be forgotten when elements of radar and other war communication devices are put into everyday use.

• **Advertisers Aroused**—Interest in television entertainment is more overt, and operators of the nine United States stations which have plugged along during the war on a few hours of telecasting a week—frequently the minimum of four hours required by the Federal Communications Commission for maintaining a franchise—are relieved to see advertisers and advertising agencies participate in programing experimentation.

The commercial promise of television took on real significance this month when the nation's two biggest radio advertisers, Lever Bros. and Procter & Gamble, entered the field. Lever Bros. is sponsoring programs over General Electric's Schenectady station WGRB through the Manhattan advertising agency of Batten, Barton, Durstine & Osborne, which also schedules television broadcasts for B. F. Goodrich Co. and the Hamilton Watch Co. Procter & Gamble is beginning its television career at the Allen B. DuMont Laboratories, Inc., in New York City, which plans to be programing for several major industries this fall, including General Foods, whose first television program came off in July.

• **Movies Favorite Fare**—Most of the wartime telecasts have not been anything to lure listeners away from their favorite radio programs or keep the family home from the movies. Mainstay of a good many stations is moving pictures, which have been shown so often that Hollywood does not object to a re-broadcast. Unlike some of the elaborate entertainment television enthusiasts

were beginning to dish out before the war, later programs have been of the simpler how-to-do-it type—with a few variety shows thrown in. Air-raid warden training, cooking lessons, the progress of a Victory garden, how synthetic rubber is produced—these are typical live talent productions for wartime consumption.

Simplicity of these programs is not exclusively the result of manpower and materials shortages in industries preoccupied with war work. It is due in considerable part to a new philosophy of television entertainment. Early experiments with supershowmanship designed to outdo the movies proved incompatible with the new industry. In most cases, viewers regarded the supercolossal production as an impolite invasion of their living rooms. They were embarrassed when the announcer appeared in tails or a dinner jacket, so he soon turned to business clothes. Similarly, programing experts figure, television men will indulge in more self-imposed censorship than any other entertainment industry.

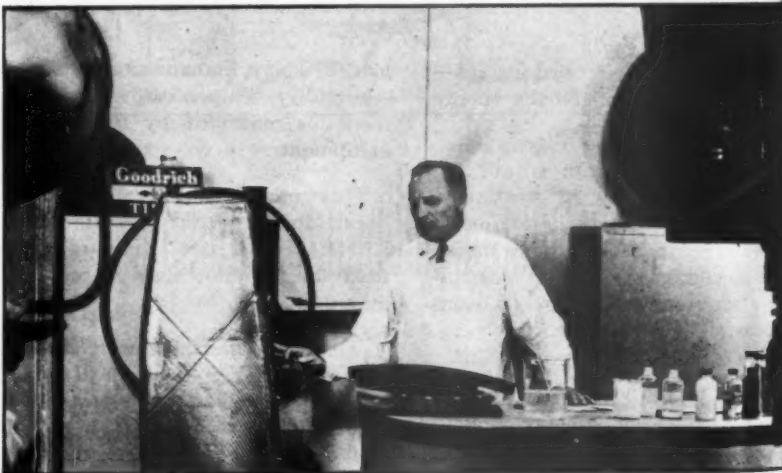
• **Visual Demonstrations**—For purposes of selling television as an advertising medium, the how-to-do-it program has a more positive reason for being. New products, particularly when their use requires unfamiliar methods, will have a chance to demonstrate usage. For example, DuMont is working with a product called "Press-On" for invisible mending of clothes to save stitching, which has been on the market for some time but has never had the widespread sale the makers believe it deserves, be-

cause the written word and prime-time picture have been inadequate.

Demonstration, obviously, is a special talent of television for advertising purposes, but television will probably get more promotion as the medium yet discovered for the exploitation of trademarks. Psychologists are to the cause of television with studies that prove the human mind retains visual impressions longer than audio impressions. Thus, as technology's gift to the advertiser, television has the advantage of being able to demonstrate methods, shape, and color of trademark product, and in the way that will be remembered long enough to influence sales.

• **Spot News Events**—As for television entertainment future, it is not limited to the keep-it-simple philosophy which affects studio-produced programs. The industry expects to telecast spot news events which NBC had begun just before war broke out. Thus far, such pickups would necessarily be limited to events occurring during daylight hours except when artificial lighting could be arranged in advance. But this is regarded as expensive and impractical.

But the possibilities of telecasting from Broadway theaters and athletic arenas give the industry something to talk about. In fact, the industry was talking about them back in 1939 and long before that. But the story was not so impressive then because a workable television network was a pretty remote possibility—and everybody knew the Army-Navy game, for instance, could be played in only one place. It could therefore, have been telecast for a radius of probably 50 miles, because the high frequency television waves travel in straight line instead of following the



A few skeptics still tell television to "Get a horse," but big advertisers are beginning to put time and money into programs. Like B. F. Goodrich's research head, Dr. Howard E. Fritz, who recently demonstrated the proc-

ess involved in manufacturing synthetic rubber over General Electric's station WGRB, advertisers are interested in exploiting television's singular ability to demonstrate methods as well as trademarks.

Have a "Coke"=Welcome, Friends



...or how to get along in Alaska

The American soldier in Alaska meets up with a hundred little things that remind him of home. One of them is Coca-Cola. Have a "Coke", says he, and it clicks in the Yukon as it does in Youngstown or Yuma. From pole to pole Coca-Cola stands for the pause that refreshes—has become the high-sign between kindly-minded strangers.

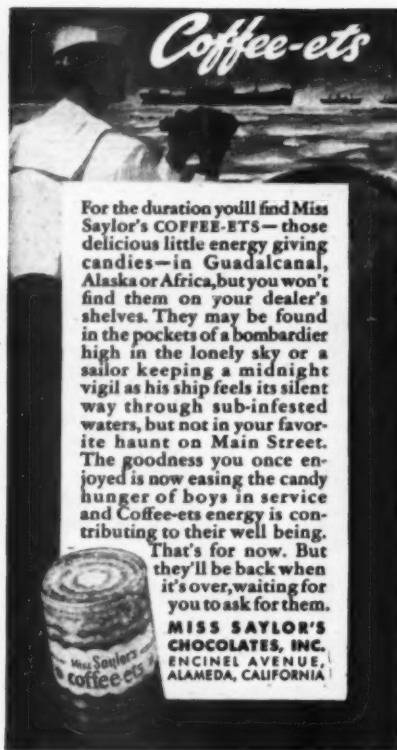
"Coke"=Coca-Cola

It's natural for popular names to acquire friendly abbreviations. That's why you hear Coca-Cola called "Coke".



—the global high-sign

COPYRIGHT 1943, THE COCA-COLA COMPANY



Coffee-ets

For the duration you'll find Miss Saylor's COFFEE-ETS—those delicious little energy giving candies—in Guadalcanal, Alaska or Africa, but you won't find them on your dealer's shelves. They may be found in the pockets of a bombardier high in the lonely sky or a sailor keeping a midnight vigil as his ship feels its silent way through sub-infested waters, but not in your favorite haunt on Main Street. The goodness you once enjoyed is now easing the candy hunger of boys in service and Coffee-ets energy is contributing to their well being.


That's for now. But they'll be back when it's over, waiting for you to ask for them.

MISS SAYLOR'S CHOCOLATES, INC.
ENCINEL AVENUE,
ALAMEDA, CALIFORNIA

Cincinnati
TIME RECORDERS
For Every Time Requirement Since 1896

POST-WAR PLANS
Ford, Bacon & Davis
Engineers

I LIKE TO TRAVEL TOO...



If you are getting ready to swap your address for a new one, be sure Business Week (that's me) comes along.

I start out from Albany, N. Y., every week and I can trail you to your new spot just as easy as I've been making the old one. Just fill in the below:

Circulation Dept., Business Week
330 West 42nd Street, New York City

NAME

OLD ADDRESS

NEW ADDRESS

Television's Skeleton Wartime Program

Television interests have held to their idea—and their franchises—though war has pared operation to a minimum. Telecasts may be seen and heard six nights a week in New York City, thanks to staggered programs of the National Broadcasting Co., Columbia Broadcasting System, and the Allen B. DuMont Laboratories, whose facilities are used once a week for television programs by the Mutual Broadcasting System.

• **Audience Size Doubtful**—How many people these broadcasts reach is a question. At the beginning of the war, New York led the country with approximately 4,400 receiving sets in homes in the metropolitan area. But the trade estimates that less than half of these are still in operation since tubes are irreplaceable for the duration. Officials estimate audiences at anything from 12 to 1,000, suggesting that many fans may have been discouraged by the drab wartime sustaining programs that are offered them.

In Hollywood, the television studio of Paramount Pictures, Inc. (which incidentally is DuMont's major stockholder) broadcasts two nights a week, and the Don Lee Broadcasting System broadcasts six hours weekly. Paramount has another station in Chicago, where it has had no competition since war closed the Zenith Radio Corp.'s studios. In Philadelphia, the Philco Corp. operates the only television station.

• **Pickup from NBC**—General Electric's station WGRB in Schenectady originates programs two afternoons and two evenings a week; it also picks up two hours of telecasting a week from NBC in New York City and relays programs to the upstate area.

There can't be much expansion of this skeleton program for the duration, but DuMont is talking about establishing a Washington studio in time to put the next Presidential inauguration on the air. DuMont may even be operating out of the capital this fall.

curvature of the earth, and the horizon consequently limits the service area of a station. As a result, stations offering individual coverage in nearly a hundred American cities would be faced with the problem of having to find themselves nearly a hundred other and less famous football games.

• **Expense Factor**—But a coast-to-coast television network now seems a postwar certainty. There was talk of network television in the 'thirties, but it would have had to be by coaxial cable, and the expense factor was such that it threatened to nullify all advantages of network broadcasting. The coaxial cable—actually a pipe stuffed with telephone wires—is the only kind of a line ever developed that could handle all of the many thousands of impulses a minute (it could also handle hundreds of simultaneous telephone conversations) required in television service.

The industry now envisions a network in which relatively inexpensive relay stations would carry the television signals from station to station. Ostensibly, because of the straight-line character of television waves, these stations would have to be spaced within 25 or 50 miles of each other—the limit of the horizon—but General Electric, which has been operating such a relay system for nearly three years, has found that it could receive the signal from NBC's station atop the Empire State Bldg. in New York City on a direct pickup by its transmitting station in the Helderberg Mountains at Schenectady better than it could boost the NBC signal up the Hudson

River Valley on a series of small local relay stations. G. E.'s experience has only served to intensify the premium which television broadcasters have always placed on altitude in order to secure a maximum service area for their transmitters, and there has already been a considerable snooping around for advantageous mountain-top sites in strategic areas, for both transmitting and relay stations. CBS, for instance, is known to have tied up a likely site on the hills back of Hollywood.

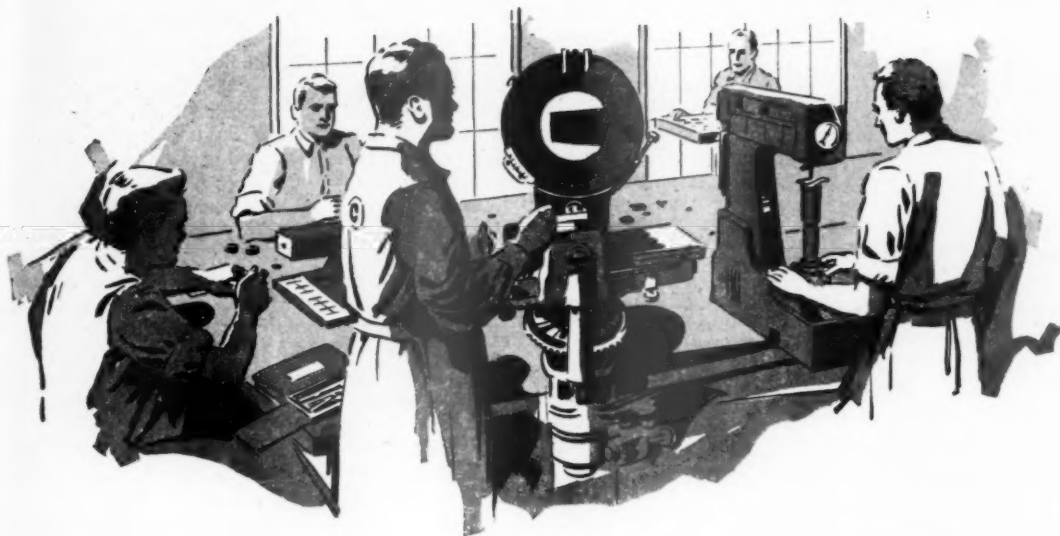
• **Plans Still in the Air**—But the network has not been blueprinted—and there is much intraindustry disagreement over whether it shall be by radio relay or by coaxial cable which is now considered less costly than it was. Some leading engineers predict that it will be a combination.

Probably the network will be operated by some common carrier like American Telephone & Telegraph and leased as radio networks now lease the telephone lines that are used for network broadcasts.

• **Skeptics at Work**—In general, television is sure of itself technologically and entertainment-wise. But still there is considerable skepticism. Not the kind that greeted the early days of the automobile, radio, and the motion picture. Skeptics attack the economic position of television and insist there is no one to foot the bill.

It is true that television will be the most expensive advertising medium yet offered. No rate cards are out for post-war network service, but back in 1939

IS *One Part* TOO VULNERABLE ON YOUR INSPECTION LINE?



IS there *one part* in your product so difficult to produce in your own plant, or so hard to have made right, that it becomes abnormally vulnerable to rejections on your inspection line?

Do such vulnerable parts fail to arrive on time . . . cause costly gaps in assembly lines, waste of manpower, loss in war effort?

Contact KAYDON

The making of difficult parts, with precision, speed and economy considered practically "impossible" two or three years ago, is now routine Kaydon procedure . . . because Kaydon is equipped with engineering plus production experience and facilities to assure "on time" deliveries of precision metal parts.

**CAPACITY
Immediately
AVAILABLE
for ball and
roller
BEARINGS
Size 6" to 60"**

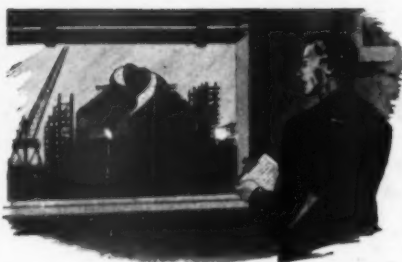
For excellence in production
of extremely precise, unusually
large ball and roller bearings.



THE KAYDON ENGINEERING CORP.

McCRACKEN STREET • MUSKEGON 81, MICH.

Specialists in Difficult Manufacturing



ON TOP! *on time, and right*

THE marvels of today's ship-building records are a result of efficient planning and work control . . . the routing of materials and controlling of operations by written instructions on paper.

Whether your business is ships or shoes, bombers or banking, *Parsons Paper* (made from strong cotton fibers) can provide the right paper controls—more efficiently, more economically.

Many of America's outstanding war plants have selected *Parsons Specialized Business Papers* to do the big job of controlling materials, men and methods. Your Printer or Lithographer will be glad to supply samples and give you complete details on how to benefit and profit by using—

Parsons Paper

Specialized for Modern Business

BOND PAPERS

For correspondence, documents, and forms of every description

LEDGER PAPERS

For accounting systems, records, certificates and other permanent needs

INDEX BRISTOLS

For machine accounting, index record cards and general uses

TECHNICAL PAPERS

Made to your specifications for all types of special requirements

PARSONS PAPER COMPANY
HOLYOKE, MASS.

cost to the advertiser in Great Britain for one hour of television (on a long-term contract) was estimated at \$2,750 an hour on a single station. In this country the industry figured that efficiency and competition might keep costs down to \$2,000 an hour even though more elaborate plans were under way. This estimate was for an hour on one New York station, assuming it could offer the advertiser 400,000 viewers. In comparison, an evening hour on WLW, the Cincinnati station with one of the highest card rates in the country, costs only half that much.

• **For the Defense**—Rebuttal for the economic argument usually is that (1) there is some pretty smart money sunk in television, (2) a new advertising medium has yet to be turned down, (3) advertisers are already putting money into television programs even if they do not buy time, (4) the national government and the FCC regard it as a major postwar industry, and (5) television receiving sets will sell. This point, of course, is the keynote in an industry which actually has to pull itself up by its bootstraps, selling sets only as it sells shows and selling shows only as it sells sets.

But the industry is confident that mass production after the war will bring the price within the reasonable range that is necessary in order to bring about widespread distribution. DuMont, for example, plans to sell a twelve-inch screen model with a radio attachment for less than \$200.

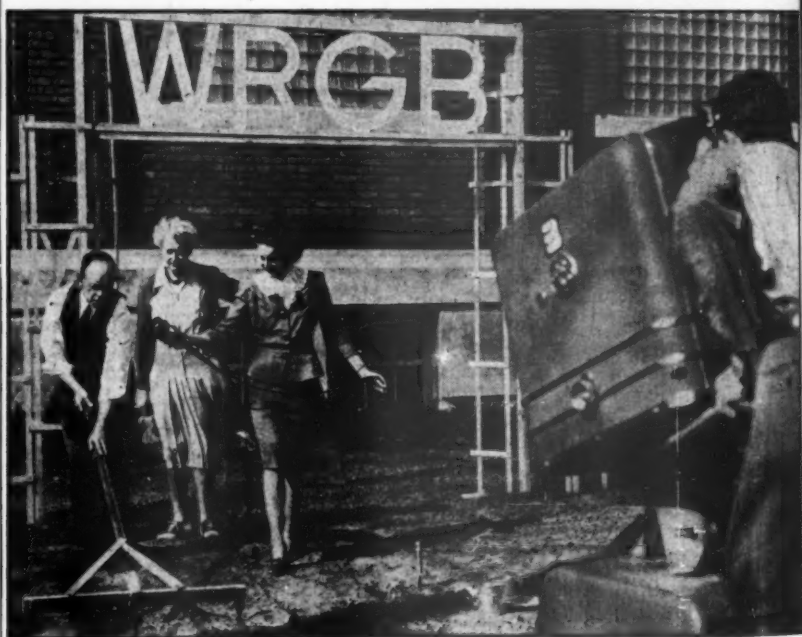
Grape Men How

Growers resent OPA's cut in the price of table grapes, but the tougher yet is changed position in dealing with wineries.

California growers are hopping mad about the ceiling on table grapes imposed by the Office of Price Administration, cutting prices back about 50% for out-of-state shipment. Growers are passing the hat to raise a war chest preparatory to seeking an OPA review—and there is a threat of going into the courts. • **Down from \$4.08 to \$2.05**—Demand for table grapes is exceptional this year, partly because the government has ordered many popular varieties, such as Thompson seedless, diverted to raisin production. The result has been a rise in retail prices to as much as 40¢ to 60¢ a pound. The new ceilings cut the return to growers to \$2.05 a 28-lb. lug from \$4.08.

The growers tried to get OPA to put the lid on at \$4.08, contending that picking costs are up 98% from a year ago and packing shed costs up 138%. Result of the ceilings, they threaten, will simply be a drop in shipments to eastern markets with growers selling what they can in California while the rest of the crop rots on the vine.

Probably the chief reason for growers' complaints will be found in the fact



Early television programs tried to out-Hollywood Hollywood, but viewers considered extravaganzas an invasion of the living room, and directors soon realized their new medium re-

quired new techniques. "Peepsight" television shows how to do it—everything from how to be an air raid warden to easy lessons in how to plant a Victory garden.

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IT'S A TOUGH PROVING GROUND

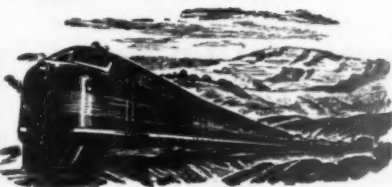
THERE'S hardly a General Motors wheel that isn't whirling exclusively for war.

Yes, the heat's really on. And while we can't tell you how many engines we're building, we can say this. You can find General Motors Diesels from African deserts to Burma jungles—and on the seas between. They're in tanks, trucks, landing and patrol vessels, tractors and many other tools of war.

And although our plants have been greatly expanded, and we're making these engines at many

times the prewar rate, they're still asking for more.

War's a hard taskmaster and a tough proving ground. But when the war is won, these enlarged production facilities for war's demands will mean more economical power for a better peacetime world.



New eras of transportation follow in the footsteps of war. Another new era of transportation is assured in the wake of this war. General Motors Diesel Locomotives already are establishing new standards.



Engines for trucks, cars, boats, and airplanes. Also for power plants, pumps, and other industrial uses.

General Motors Diesel Locomotives for railroads and marine service.

General Motors Diesel Engines for power plants, pumps, and other industrial uses.

NO DAM IS TOO BIG

NO BUILDING
TOO INTRICATE

NO TRAFFIC TOO HEAVY

for CONCRETE the Structural Plastic

Concrete, the versatile structural plastic, is readily molded to any shape or form. Then it becomes rigid, strong and durable, defying fire, floods and storms—resisting heavy impact and abrasion.

For war, concrete builds heavy-duty airport runways, military access roads, warehouses, munitions plants, hospitals and housing—provides economical labor-saving facilities which help farmers.

During the war, contractors have made great progress in methods of construction with concrete—have

developed new economies which save time and material.

When peace returns, these advantages, plus the low annual cost and firesafety inherent in concrete, will be available for all civilian needs. Then concrete will again build livable, attractive homes, beautiful churches, enduring public buildings, and help extend the nation's system of safe, low-maintenance-cost highways and civilian airports.

Our engineers will gladly help you solve wartime concrete problems or plan postwar construction projects.

PORTLAND CEMENT ASSOCIATION, Dept. ABd-12, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of concrete . . . through scientific research and engineering field work

BUY MORE WAR BONDS

that they have been done out of the squeeze they thought they were going to be able to put on vintners. The large wineries, several of which were bought out by big distilling companies last fall (BW—Dec. 12 '42, p. 66), are out to fill their cooperage. To do so, they will bid for large quantities of certain types of table grapes (such as muscat and Tokays) suitable for producing neutral brandy, neutral wines, grape concentrate, and byproducts.

• **How It Would Have Worked**—Growers were figuring on getting a good price from wineries by the simple expedient of threatening to ship their grapes to eastern markets.

Production of grapes in California this year is expected to exceed that for 1942 by a fairly wide margin. The Aug. 1 Dept. of Agriculture estimate was for a 1943 crop of 512,000 tons of wine grapes against 474,000 in 1942; 459,000 tons of table varieties against 409,000; and 1,513,000 tons of raisin types against 1,277,000.

Cut in Wine Hurts

Restrictions on use of 25 types of fruit in Midwest and East expected to cost vintners millions of dollars.

To the wine-consuming public, the recent War Food Administration order restricting the use of 25 fruits and berries except in California for making alcoholic beverages will probably mean not more than a 5% decrease in the over-all supply of wine. But small wineries in the East and Midwest will be hard hit. According to the Associated Vintners of the Midwest, their aggregate loss will be between \$13,000,000 and \$18,000,000. While California wine makers are unaffected by the order, they are harassed by other government restrictions limiting certain varieties of grapes for raisin production.

• **Prospects for Grapes**—Purpose of the WFA order is to provide for military and civilian requirements of fresh, dried and processed fruits and berries in the face of a 1943 crop that is generally short due to late spring frosts. For example, Dept. of Agriculture estimates of 1943 grape production (all varieties) in the East and Midwest are substantially less than last year's crop in all of the major producing states except Michigan:

| | 1943 (estimated) | 1942 |
|--------------|---------------------|-------------|
| Ohio | 20,000 tons | 22,400 tons |
| Illinois | 3,400 " | 4,300 " |
| Michigan | 36,800 " | 35,400 " |
| New York | 41,600 " | 69,000 " |
| Pennsylvania | 16,800 " | 21,500 " |

Few of the fruits and berries listed

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1943



Instrument of the ~~Immortals~~!

Hurting through blackness somewhere on the other side of the world, a bomber streaks home from its battered, burning target . . .

Not so many nights ago, its pilot sat in the living room of his home and listened to the world's finest music. Tonight, his living room is a compartment . . . and the music he listens and prays for, is the unbroken rhythm of his engines. Among the many instruments he depends upon is the one you see pictured here, for it tested the magnetos of his plane's engines before he left on his mission . . . tested them for their ability to function perfectly through heat, cold, humidity, changing altitudes and speeds.

Living rooms have changed for thousands of young Americans. Instruments like this Denison HydroILic Test Stand are all-important in their lives today. Someday those men will return to quiet homes and travel tranquil airways . . . then HydroILics will serve them in Peace! The Denison Engineering Company, 1193 Dublin Road, Columbus, Ohio.

Your Problems for Tomorrow...

You may find oil-hydraulics the answer to problems involving design, production or improvement of your products. Denison HydroILic engineers have successfully adapted the smooth accuracy, flexibility and controllability of oil-hydraulic power to a remarkable variety of equipment. We'll be glad to discuss your problems with you.



DENISON
EQUIPMENT *in* APPLIED
HydroILics

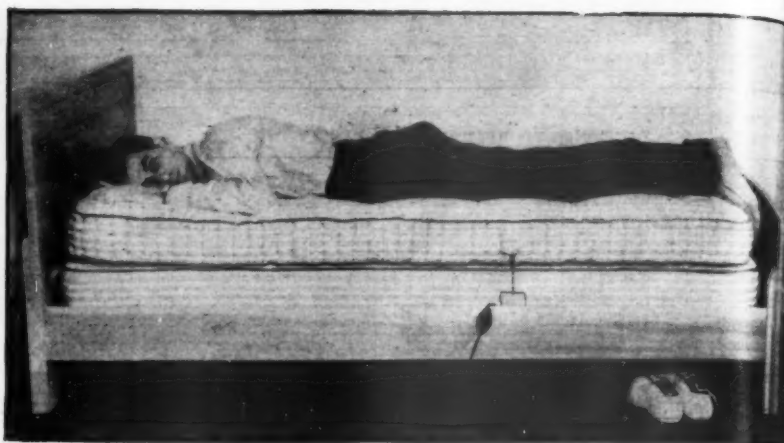


Yes, the "Unbrako" Self-Locking Hollow Set Screw is literally "yours" because its now famous design was evolved in response to your needs. You, the users, first insisted upon hollow set screws back in 1909 and the demand grew apace with your interest in "Safety First". Our most recent development is the *Knurled Point*, providing an added measure of industrial safety and greatly reducing maintenance worries. When tightened as usual, "Unbrako" Self-Lockers stay tightened; yet they can be readily removed and used again and again. Write for catalog.



SELF-LOCKING
HOLLOW SET
SCREW. Pat'd.
& Pat. Pend.
KNURLING of
Socket Screws orig-
inated with
"Unbrako"
years ago.

STANDARD PRESSED STEEL CO.
JENKINTOWN, PENNA. BOX 598
OVER 40 YEARS IN BUSINESS



OSCILLATING BED

New electrified bedsprings are appearing in selected markets and getting medical science's attention. Except for wiring, the unit resembles an ordinary box-spring (above). Inside there's a 0.01-hp. a.c. motor which requires no priority. Specially designed spring arrangements and novel mountings transmit 5,000 pulsations a minute from the motor through the mattress to its occupant. Developed by Simmons, the new springs operate on

an old oscillation principle in which the bedding firm became interested 18 months ago. Research thus far credits the device with gentle muscular massage and nerve relaxation that boost the user's blood circulation and give other therapeutic benefits. Simmons is retailing the spring and a mattress for \$99.50 at Stern Bros., New York; Kresge's, Newark, N. J., and J. N. Adams' store, Buffalo, N. Y. One of its most interesting uses is in war plants—to ease minor aches and pains of the workers.

FIRE CHIEF

A patented Hooperwood
"Engineered Canvas"
permanently resistant to
fire, water, weather,
mildew and wear.

**WM. E. HOOPER
& SONS CO.**

PHILADELPHIA
New York • Chicago

Mills: WOODBERRY,
BALTIMORE, MD.

**HOOPERWOOD
COTTON DUCK**

in the order were used for wine-making to any extent, if at all, but WFA anticipated that this year vintners would make wine out of any suitable fruit they could get, hence listed every possible variety. What hurts most is the inclusion of Concord grapes, source of about half the country's non-California wines, and blackberries.

• **When Are They Unfit?**—Many a winery owns its own vineyards; under the new order, it will have to sell its grapes to preservers or produce markets, unless, of course, the fruit happens to be "unfit for human consumption except when converted into an alcoholic product"—a matter to be decided by the County Agricultural War Board. In the current scarcity of harvest labor, many a bushel of grapes may prove unfit for the general market simply for lack of adequate care in handling.

A few vintners are protesting to the WFA that Concord grapes should be removed from the list, but since the wineries are relatively small and poorly organized, the trade considers their chances of success slender. Some even mutter darkly that the WFA order was engineered by fruit preservers, whom the wineries have usually been able to outbid in the scramble for grapes, thanks to longer profit margins.

• **Timing Factor**—Probably the bitterest pill of all is that the new restriction

comes just when wine consumption would otherwise reach phenomenal heights. According to Bureau of Internal Revenue figures, U. S. consumption of all wines (domestic and imported) in 1940 jumped 17% over 1939; 1941 was 13.5% over 1940; 1942 was 10% over 1941. Although 1943 consumption will probably reach an all-time high, the decline in the rate of acceleration is exasperating to vintners since it represents not a slackening demand but lack of wine.

California wine represents about 89% of the country's production. Hence the order setting aside part of the muscat, sultana, and white mission grapes for raisins rather than wine-making, plus lack of manpower for harvesting, will seriously affect the supply of wine. California production dropped from 105,198,000 gal. in 1941 to 62,147,000 gal. in 1942. The shortage was aggravated by drastic curtailment of shipping facilities for wine moving out of California, and by wineries' refusal to sell wine needed for ageing stocks.

• **Consumption Soars**—Total apparent wine consumption (domestic and foreign) in the United States last year was 112,053,000 gal. not including an estimated 27,300,000 gal. of noncommercial "basement" wines. Wine men claim they could have sold 175,000,000 gal. in 1942 if the supply had been sufficient.

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*National Homes house sections are transported by Bud Marks Truck Service.

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War workers are now getting the homes that National's fleet of Fruehauf Trailers are transporting. After the war, a host of other American families will likely choose these attractive homes that they can take with them wherever they go.

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Chemical and Food Equipment Engineers

FINANCE

Banking on Air

Smaller companies already have started to raise money for postwar airline expansion; total outlay may reach half billion.

Thoughts of peace in the air, premature though they may be, have turned the eyes of those with "venture capital" towards the airlines and their much publicized postwar prospects. The lines, meanwhile, have not been backward in making postwar plans. Nor, for that matter, have a few railroads which intend, if legally able, to organize airlines to hold as much as possible of the present rail traffic they expect to see take to the air after the war.

• **Scope of the Plans**—Concrete evidence of the ambitious plans contemplated, moreover, is not lacking as the Civil Aeronautics Board has received applications for establishment of some 400,000 miles of passenger and freight routes, here and abroad, against the 126,000 miles operated before the war. Such leading lines as American, Eastern, United, and Transcontinental & Western Air already have won access to important new territory, and each is still reaching out for more.

Some smaller lines have very ambitious plans, too. Pennsylvania-Central has asked permission to start a transatlantic service it claims will cost no more to operate than overland travel due to floating airdromes. Northeast Airlines proposes to start a Scandinavian-northern European service, and both Chicago & Southern and Northwest Airlines plan routes to the Orient via Alaska. Braniff and Delta lines are also after new territory. There are elaborate plans for skytrains with gliders, plus all-cargo services, several of which already operate on regular schedule, and Southwest Airways and Northeast are each considering helicopter services.

• **Reduced Facilities**—Before Pearl Harbor, the airlines operated 358 planes over domestic routes. However, they have since suffered many hardships due to the suspension of routes, cutting of schedules, loss of planes to the Army, etc. As a result, by the end of 1942, they were operating less than 72% of prewar mileage with but 51% of their prewar planes.

The Army has lately returned a few planes and more are promised over coming months. However, even all the prewar equipment looms up very small now in relation to the 5,000 planes air-minded gentry think the lines will need after the war. Such a growth would

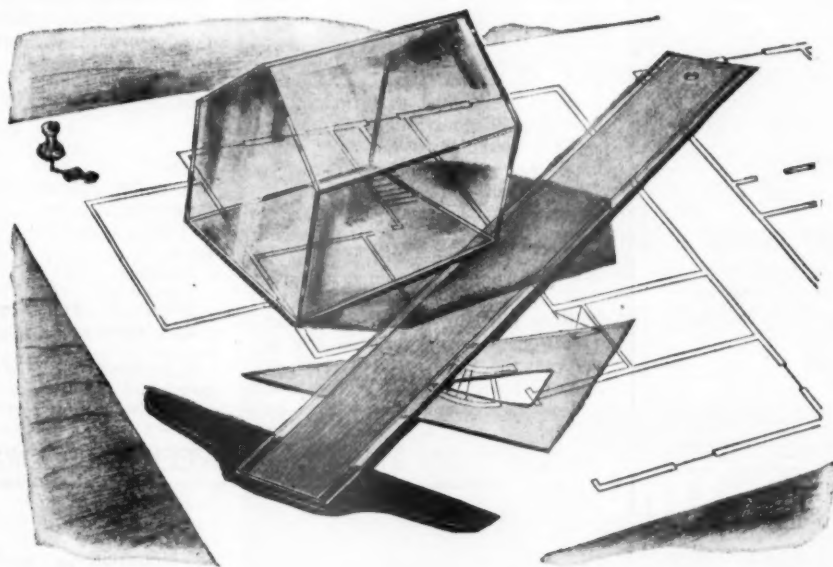
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prosperity
may live in a

glass house

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The glass industry is finding new ways to compete with other building materials . . . and has gone into the manufacture of plastics which may compete with glass. The airplane and the home are looming as two of its great new markets.

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THE MARKETS

During part of last week stocks, generally, did manage to stage a creeping advance. However, quite a little price weakness developed subsequently, and this not only wiped out pretty much the gains previously registered so laboriously in the various stock averages following the early August "Mussolini lows" but also has sent some averages back to their late April levels.

• **More Trading on Dips**—Any thought on the Street that there might still be a trace left of the earlier bull market buying enthusiasm in the minds of investors as a class seems to have vanished completely. To some traders, too, the tendency lately of market volume to rise on any increase in selling pressure is a somewhat disturbing factor.

However, some of the chart reading tribe still remain undaunted. Back now from the hills, where they fled to hide from followers for a time after their July predictions that a "confirmatory breakthrough" of the rails forecast a further sharp upsurge in prices, they remain unconvinced (unlike those who bought at their suggestion).

This group calls recent volume and price changes too small and minor in scope to mean much as an index to the immediate or more distant trend of stock prices. Seemingly, the chart readers simply are waiting for one of their beloved "signals."

• **Retarding Factors**—The Street, generally, however, thinks the coming Treasury drive for at least \$15,000,000 from nonbanking sources, as well as Sept. 15 tax payments, will be a restraining influence on the market for a time. They also see investors still puzzled over the significance of recent events and well aware of current evidence that at least temporary dampers have been

placed on inflation forces. In fact, some key observers, instead of looking for a near-term price rise, see more than a bare chance that recent declines may be forecasting a real test soon of resistance levels in the other direction.

According to the latest Treasury bulletin, savings bond sales through Aug. 19 totaled \$459,383,030. Redemptions in the same period came to \$95,166,645 and thus actually represented over 20% of the month's sales. However, a steady increase in redemptions must be expected in view of the constantly mounting total of bonds outstanding.

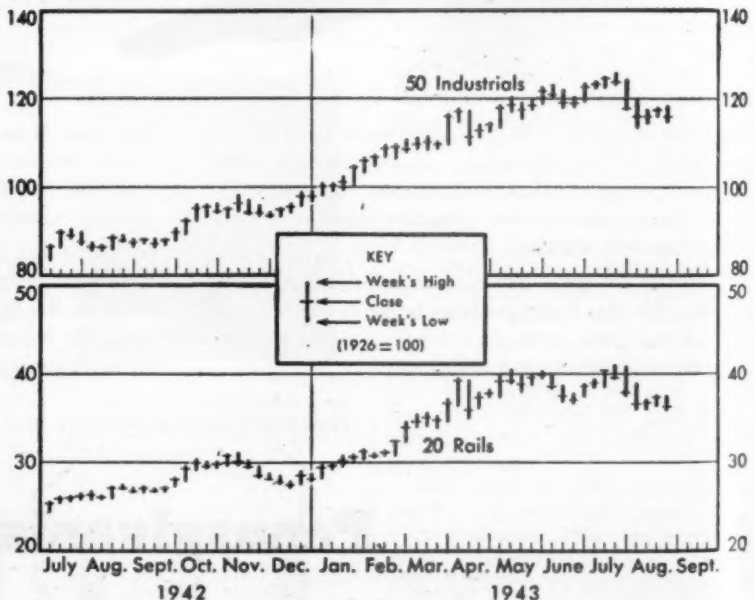
• **Joy-Riding Problem**—At a meeting this week of the Federal Reserve Bank and representatives of large New York banks to clean up final details of next month's war bond drive, there was considerable discussion, according to reports, concerning the scalping of quick profits by quite a number of buyers during the Treasury's July offering of the 1½% notes. However, conditions surrounding the September operation are so different that it was pretty well agreed that any similar development next month seemed very unlikely to occur.

Security Price Averages

| | This Week | Week Ago | Month Ago | Year Ago |
|-----------------|-----------|----------|-----------|----------|
| Stocks | | | | |
| Industrial ... | 115.8 | 117.5 | 117.9 | 87.8 |
| Railroad | 36.4 | 37.4 | 37.9 | 27.2 |
| Utility | 49.3 | 50.5 | 50.5 | 30.3 |
| Bonds | | | | |
| Industrial ... | 117.4 | 117.0 | 116.5 | 108.8 |
| Railroad | 98.0 | 98.8 | 99.7 | 85.5 |
| Utility | 115.6 | 115.7 | 115.4 | 104.4 |
| U. S. Govt. ... | 112.9 | 112.8 | 112.9 | 110.5 |

Data: Standard & Poor's Corp. except for government bonds which are from the Federal Reserve Bank of New York.

COMMON STOCKS—A WEEKLY RECORD



Data: Standard & Poor's Corp.

ail a tremendous rise in present
and facilities, communication sys-
s, etc., all of which brings to the fore
question of how the industry can
the expansion.

Small Lines Raise Money—Most of
big lines are said to have had post-
financing plans under active discus-
with bankers for some time. How-
smaller units have already started
ball rolling. A new offering of
stock has been registered with
Securities & Exchange Commission
from reports, was quickly oversub-
by a syndicate formed to offer it
publicly later. Northeast has just regis-
200,000 shares of new common to
offered first to present stockholders,
Pennsylvania-Central is said to be
a \$5,000,000 financing opera-
Northwest and Chicago & South-
too, are reported about to enter the
capital market.

Managements of the larger lines are
reported to be shying away from the
idea of selling any common stock, prob-
ably to avoid any chance of their losing
control later on. Instead, they are said
to be considering the sale of preferred
stock, since issuance of long-term mort-
gage debt is not suitable for airlines due
to the short life of planes (usually
lured at around five years).

Novel Methods—It is quite possible
that bank loans against equipment trust
certificates or chattel mortgages may
provide a certain part of the airlines'
new money needs. They are very
familiar with such financing since the
Chase National Bank, New York, has
made substantial past advances on chat-
tel mortgages to Braniff, Pennsylvania-
Central, American, and others, and Pan
American has borrowed from the New
York Trust Co. on equipment trusts.
Another New York bank, Manufacturers
Trust Co., has had experience, as
well, in financing planes with instru-
ments like those used normally in auto
financing.

As mail contracts are a most
important source of revenue, past indi-
cations that the government was deter-
mined to hold airlines to a return of
10%, or less, on invested capital did
for a time cast a cloud over their future
earnings prospects. However, in its mail
reduction orders, effective Jan. 1,
1943, the CAB stressed that, while it
intended to eliminate mail subsidies no
longer needed, it was, nevertheless, per-
mitting rates on nonmail traffic that
would provide earnings of well above
10% on capital.

May Need Half Billion—Progress of
airline financing will undoubtedly be
geared to the availability of new equip-
ment. Bankers are talking now of
future financing involving as much as
\$500,000,000 for the whole industry, in-
cluding perhaps \$100,000,000 each for
American, Pan American, and United
Air Lines.

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Big Bond Buyers

Life insurance companies take almost \$1,600,000,000 U. S. Treasury's "new money" offerings in half year.

Figures indicating where a good part of the government's recent bond offerings (to cover its "new money" needs because of the war) has been going to be found in financial details made available by the Institute of Life Insurance.

• **Make up 30% of Assets**—According to the institute, holdings of the nation's life companies in Treasury obligations rose \$1,590,000,000 in the first half of 1943 and since the end of 1941 have shown an expansion of 30%. Total holdings, moreover, on June 30, 1943, reached the record level of \$1,960,000,000, accounting for about 30% of the companies' total assets.

In the case of the companies' holdings of corporate obligations, these have remained relatively stable. At \$10,230,000,000, they are but \$30,000,000 higher than at the close of 1942 and only \$100,000,000 greater than at the 1941 year end. Canadian government and domestic state and municipal issues (long favorite investments of the life companies) also changed only moderately in the first half of this year, declining \$40,000,000. At \$2,650,000,000, they remained some \$20,000,000 above levels of a year and a half ago.

• **Farm Holdings Drop**—The reduction being accomplished in realty holdings previously acquired via the foreclosure route, shows, however, that the life companies have been busily taking full advantage of the better demand and prices. This is particularly true in the case of farm properties. Ownership there disclosed a drop of \$80,000,000 since Jan. 1, 1943, and the \$400,000,000 of farm properties held on June 30 represented a drop of some 30% since Dec. 31, 1941.

Urban real estate holdings, at \$1,090,000,000 on June 30, 1943, showed a drop of but \$60,000,000 since the close of 1942. Mortgage investments, consisting of \$870,000,000 secured by farm and \$5,770,000,000 by city real estate were only slightly changed in the first half of the year.

• **Dividends Off This Year**—In 1942 policyholders received total dividends of \$434,700,000 or about \$2,500,000 more than in 1941. However, the declining trend in higher-earning assets and replacement with much lower-yielding government obligations are now having an effect. Dividends of only \$206,570,000 were paid in the first six months of 1943, about 9% under the same period last year.

Postwar Surplus

In a letter commenting on the postwar disposition of surplus machine tools and kindred equipment, Roy A. Bradt, president of the Maytag Co., offers the following suggestion:

In view of the tremendous stock of machine tools and equipment existing throughout the industry today, is there any reason why the following wouldn't be a solution:

(1) Let the government offer to private industry such of this machine tool stock as is needed for normal peacetime production, at any such price as five or ten cents per dollar, but at a fair figure of say 75¢ per dollar;

(2) Such equipment as may not be needed immediately by industry to be called by the government, made a part of the postwar international planning program, and sold for the purposes of rehabilitating devastated countries such as Belgium, Netherlands, France, China, etc.

Otherwise, there will be danger of government planners feeling that it must be put into use in competition with private industry, or some companies will get hold of a large amount of this equipment at a ridiculously low price, and provide unfair and devastating competition for other firms who have had to pay full price for the same kind of equipment.

It appears to me that if this industry produced basic and general machine tool equipment for approximately eight years in advance, and if this particular factor is not properly handled after the war is over, it would create a very insidious imbalance that would affect not only the entire equipment industry, but other industries as well.

I presume, if the above suggestion is followed, there would be an immediate cry from some branches of industry against setting up foreign countries with equipment that would make it possible for them to compete with American industry. I know there are a lot of people who think this way, but it seems to me that if we dispose of equipment to devastated countries, it not only would be a humanitarian act in the broadest sense of the word, but would make it possible for those same countries to raise their standards of living and produce national income with which they in turn could purchase things that the United States wanted to sell.

Test Alerts

The heavy-set man dropped into the seat alongside me in the diner. Red-faced and breathless, he looked about him with that air of being about at a boil and needing a vessel to catch the overflow. It seemed that I would do.

"That," he opened up, "was a close shave."

"Traffic jam?" I inquired.

"No, damn it, it's this 'test alert' business. Some day I'm going to get caught near off first base. And I don't see any good reason for it either."

"Meaning," I asked, "just what?"

"Now look," he went on, "here's a man that's leaving New York on a certain train. He's had his reservations for weeks. Maybe he's going to the Pacific Coast or half way across the continent—with close connections all along the line. He's sitting at home or in his office figuring he has lots of time to make his train. Along comes a 'test alert' signal. He knows that pretty soon the second signal will sound off and street traffic will be stopped. Sometimes traffic shuts down like that an hour or more. Now where does he get off at?"

"Seems to me," I ventured, "what you really want to know is where does he get on at?"

"Yes," he smiled, regaining a bit of his normal poise, "where does he get on at? Now take today. I was just lucky because this alert only lasted about ten or fifteen minutes. When the first warning sounded I was in my office. So I made tracks, hoping I could make the station before the second alarm cracked down. But I couldn't quite make it. Had to duck into an office building and stay there until the whole business was over. Because it was a short one, I still just had time to get here and make the train. But if I'd had another two blocks to go, I'd have been sunk. As it was, I like to blew a fuse!"

"Well," I consoled, "I suppose it's another case of there being a war on."

"Yes, I know," he answered wearily. "We all want to do whatever is necessary to win the war, naturally. But I wonder if all the things we're made to do in the name of winning the war really help at all—actually are necessary."

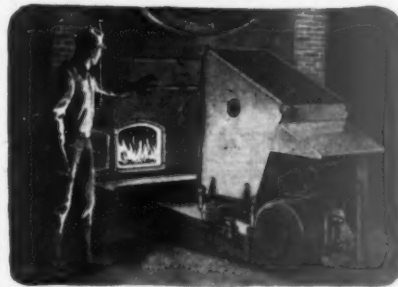
"I don't suppose the average citizen really can judge about that," I suggested.

"Oh, I don't know about that either," he came back. "Of course, the average citizen doesn't have all the secret dope that's necessary to make military decisions. But a lot of things like this are right down to the level of the ordinary fellow. And it's pretty hard to convince him that a lot of the discomfort and inconvenience he's put to is necessary to win the war. Anyway it seems to me that the guys that have the time to work out all this test alert ritual ought to be smart enough to fix it so that people aren't forced to miss long-haul trains. After all, the way things are now, it isn't just a matter of catching the next train—especially if a lot of connections are involved. You may get stuck for days somewhere along the line."

By this time, his blood pressure had about slid back to normal, and we got off on another tack. But he left an interesting question just the same.

W.C.

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THE TREND

THE BASIS OF THE WAGE CONTROVERSY

Something like a respite in the heated argument that rages over war wages has just been provided by the cost-of-living index. Seasonal factors and subsidies have turned back the clock and prices now stand at their March-April levels. At 123.8, the current living-cost figure is 1% under what it was in May.

Actually, 1% more or less is important in a fight against inflation only because of which side of the ledger it is entered on. Representing, as it does, the first reversal of an upward movement that began in November, 1940, the 1% recession becomes a major landmark. In practical terms, it steals some of the thunder from union leaders who have been demanding that wages be raised to compensate for increasing living costs and their quieting down stills some of the counter-blasts they evoked.

Although the controversy is by no means adjourned, the present provides the best opportunity we have had yet for a consideration of wage arguments without being under the duress of urgency.

- **Organized labor and its allies** have been maintaining that hourly wage rates are lagging so far behind the cost of living as to make wage earners, who are working harder and longer than they have for decades, bear an inequitable share of wartime sacrifices. The rejoinder has been that hourly rates do not give the true picture of a worker's income, that weekly earnings are take-home wages and the only realistic measure of earnings.

Union leaders and industrial relations executives have in common a primary interest in hourly rates. This is the figure which is written into labor contracts and is the subject of intensive bargaining. It is a much stickier figure than weekly earnings which fluctuate between wide extremes, and it is the figure that will be the starting point for labor and management negotiators sitting down when the war is over to equilibrate labor costs in a peacetime economy.

Union preoccupation with straight-time rates of pay is therefore understandable, even though its disguise as a concern for current standards of living is not always palatable. If the standard of living of the average industrial employee were indeed fixed by hourly rates, he would now be appreciably worse off than he was before the war began.

- **The only official statistics** on average straight-time rates sample a few industries. Over-all averages are not collected. Nevertheless we know that they stand at around 15% above their January, 1941, level. Practically all wage adjustments have come under the purview of the National War Labor Board and only in exceptional cases have they been permitted to rise above the 15% ceiling of the Little Steel formula. Since May of 1942, the cost of living has been outdistancing hourly wages, and it is now about 24% above its January, 1941, base.

Note, however, what has happened to average hourly earnings (in cents) over the same period.

| | 1941 | 1942 |
|-----------------|------|------|
| January | 68.3 | 80.1 |
| February | 68.5 | 80.3 |
| March | 68.9 | 81.1 |
| April | 70.2 | 82.2 |
| May | 72.1 | 83.5 |
| June | 73.2 | 84.5 |
| July | 73.5 | 85.6 |
| August | 73.6 | 87.0 |
| September | 74.8 | 89.2 |
| October | 76.1 | 89.3 |
| November | 77.3 | 90.5 |
| December | 78.3 | 90.7 |

Average hourly earnings reflect not only bonus over time payments prorated over a week's working hours, but also the movement of workers from civilian goods employment to jobs in the higher paying war industries and upgrading within an industry.

These same factors, with a greater emphasis on overtime, explain why average weekly earnings have risen from \$26.64 in January, 1941, to \$43.35 in June of this year. Over the same period, average hours worked per week have increased from 39 to 45.2. Although there are many workers whose incomes have increased only 15%, so many more have sharply raised their earnings since January of 1941 as to pull the average of weekly earnings up 63%.

- **This is the statistic** that all the shooting is over. Union critics insist that it is the only nonabstract figure on wages and the only one which indicates how workers have fared. Union leaders retort that it is no more realistic than straight-time rates, that before weekly earnings become take-home pay they are reduced by a 20% withholding tax, a social security tax, a payroll deduction for war bonds, and in many cases—although they don't make a point of it—a checkoff of union dues. Allowing for these items, a \$43.35 average weekly earning can become \$31.50 in actual take-home cash. But whether the money is going to the tax collector, to purchase equities in social security benefits, to savings in the form of bonds, or to union coffers, industry knows that its books show a 140% increase in payrolls since January, 1941.

Business is convinced that labor costs are inflated far beyond the price structure. It does not, however, prescribe wage cuts. Its interest is in maintaining the ceiling on hourly rates and eliminating the time-and-a-half bonus on overtime. Organized labor wants the ceiling removed and time-and-a-half continued. Unless the cost-of-living index suddenly goes berserk, both will have to be satisfied with half a loaf. For the perceptible future the Little Steel formula will be maintained and overtime premiums will not be eliminated.

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